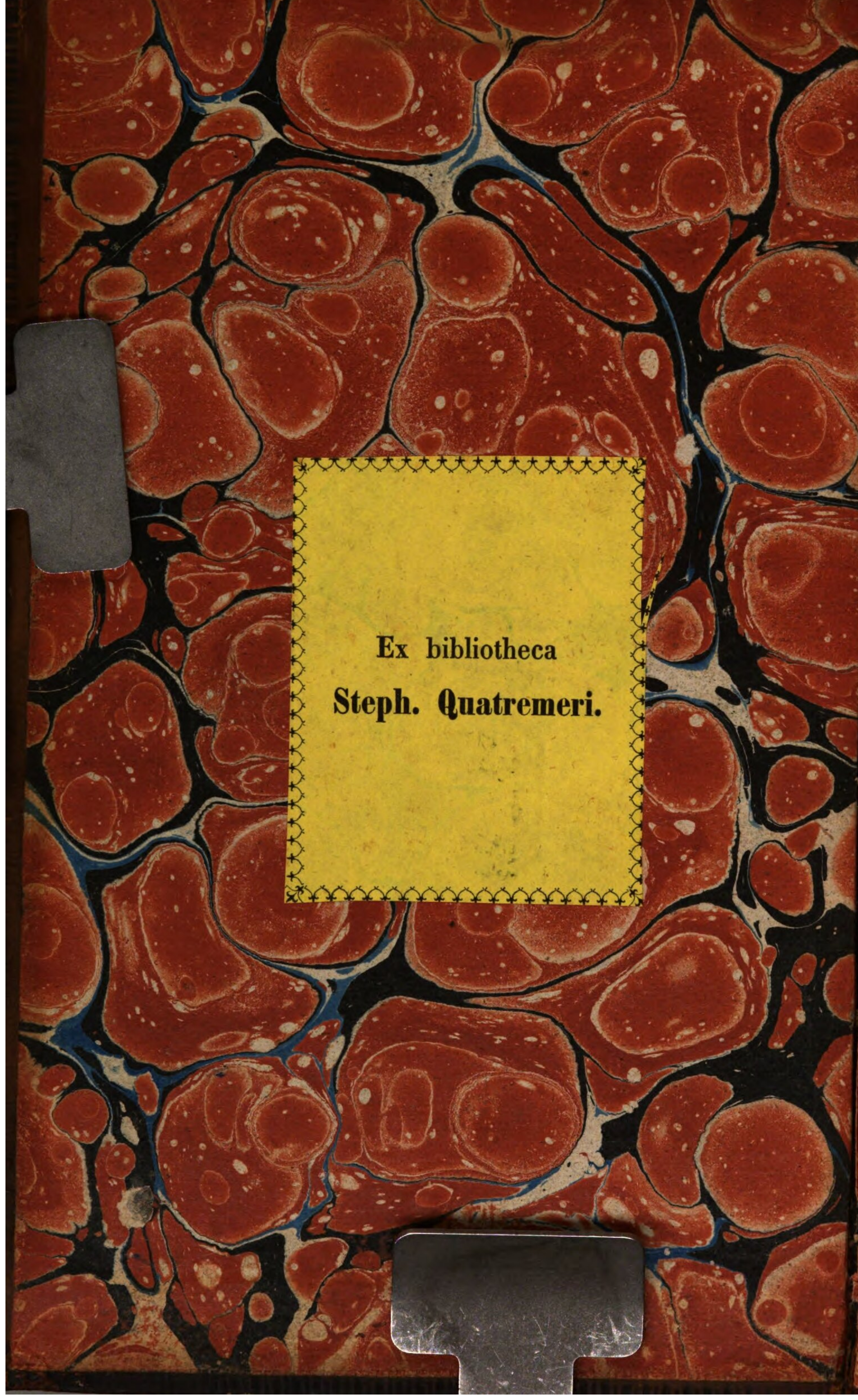
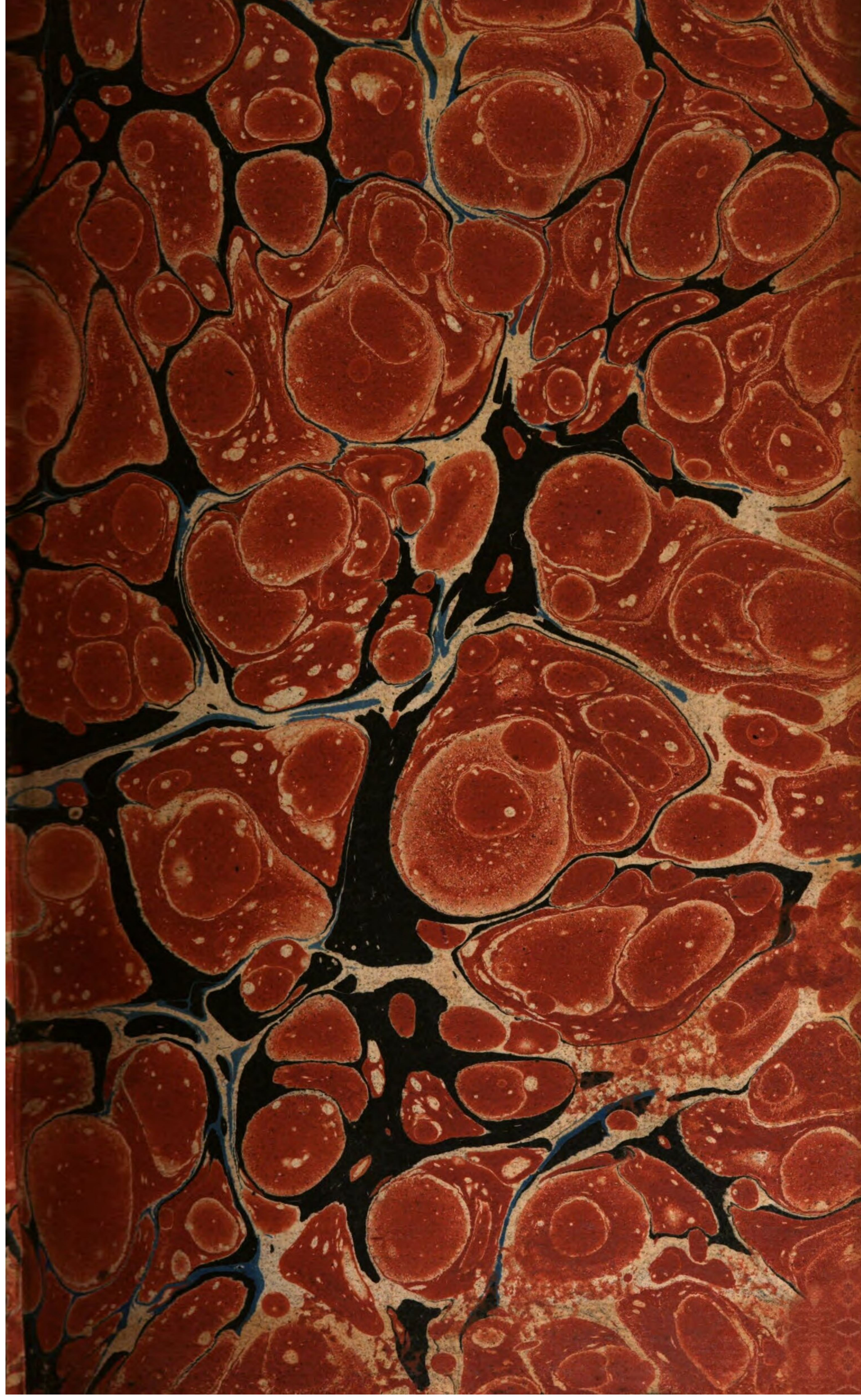




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ALPHABETICALLY

GENERAL ENCYCLOPEDIA

OF THE HISTORY, GEOGRAPHY, AND NATURAL HISTORY

LITERATURE AND SCIENCE

OF THE UNITED STATES OF AMERICA

AND OF THE WORLD

EDITED BY HENRY KITT, A.B.

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1891

THIS VOLUME CONTAINS THE ALPHABETICALLY ARRANGED LIST OF THE PUBLISHED VOLUMES OF THE GENERAL ENCYCLOPEDIA OF THE HISTORY, GEOGRAPHY, AND NATURAL HISTORY OF THE UNITED STATES OF AMERICA, AND OF THE WORLD, LITERATURE AND SCIENCE, EDITED BY HENRY KITT, A.B., AT THE OFFICE OF THE PUBLISHER, 107 NASSAU ST., NEW YORK.

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INTRODUCTORY TO
USEFUL BOOKS IN THE PRINCIPAL BRANCHES
OF
LITERATURE AND SCIENCE.

WITH
LISTS OF THE MOST APPROVED AUTHORS;
INCLUDING THE
BEST EDITIONS OF THE CLASSICS.

DESIGNED CHIEFLY FOR THE
JUNIOR STUDENTS IN THE UNIVERSITIES,
AND THE
HIGHER CLASSES IN SCHOOLS.

BY HENRY KETT, B. D.
FELLOW AND TUTOR OF TRINITY COLLEGE, OXFORD.

IN TWO VOLUMES.

VOL. II.

THE SIXTH EDITION,
CORRECTED, AND CONSIDERABLY ENLARGED.

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London :

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1806.

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CONTENTS

TO THE

SECOND VOLUME.

CLASS III. HISTORY CONTINUED.

Chap.	Page
XII. The History of England	1
XIII. The Subject continued	40

CLASS IV. PHILOSOPHY.

I. Logic, or the Right Use of Reason	53
II. The Mathematics	82
III. The Subject continued	127
IV. The Works of Nature—The Animal Kingdom ..	155
V. The Vegetable Kingdom—Botany	186
VI. The Mineral Kingdom—Chemistry	207

CLASS V. POLITE LITERATURE, AND THE ELEGANT ARTS.

I. On Taste	244
II. Music	269
Painting	278
Poetry	288

CLASS

CLASS VI. THE SOURCES OF OUR NATIONAL PROSPERITY.

	Page
I. Agriculture	298
II. The Subject continued	319
III. Commerce	335
Foreign Travel	374
The Professions—Of Law—The Medical and Clerical Professions	} 406
The concluding Chapter	445
Appendix—Preface to the List of Books	474
List of Miscellaneous Books	480
Classics, Greek	515
Classics, Latin	536

HISTORY.

CLASS III. CONTINUED.

The History of England.

CHAPTER XII.

THE advantages, which result from an acquaintance with the history of our own country, are too obvious to require many previous observations. Such knowledge is of the greatest importance to all those who take an active part in the public service, either as officers of the army or navy, magistrates, or members of parliament. And to persons of all other descriptions it is equally agreeable, if not equally necessary; because, as every Englishman finds a pleasure in deciding upon the propriety of political measures, and estimating the merits of those who direct the helm of government; he cannot form correct opinions, how far they are likely to conduce to the national interest or glory, if he should neglect to lay the foundation, upon which alone such correct opinions can be built^a.

^a My statements in general are taken from Carte's History of England, Blackstone's Commentaries, De Lolme on the Constitution, and Salmon's chronological Historian for the dates.

The love of our country naturally awakens in us a spirit of curiosity to inquire into the conduct of our ancestors, and to learn the memorable events of their history: and this is certainly a far stronger motive, than any which usually prompts us to the pursuit of other historical researches. Nothing that happened to our forefathers can be a matter of indifference to us. It is natural to indulge the mixed emotions of esteem and veneration for them; and our regard is not founded upon blind partiality, but results from the most steady and rational attachment. We are their descendants, we reap the fruits of their public and private labours, and we not only share the inheritance of their property, but derive reputation from their noble actions. A Russian or a Turk may have a strong predilection for his country, and entertain a profound veneration for his ancestors: but, destitute as he himself of an equal share of the blessings which result from security, liberty, and impartial laws, he can never feel the same generous and pure patriotism, which glows in the breast of a Briton.

“ If an Englishman,” said the great Frederic of Prussia, “ has no knowledge of those kings that filled the throne of Persia; if his memory is not embarrassed with that infinite number of popes that ruled the church, we are ready to excuse him: but we shall hardly have the same indulgence for him, if he is a stranger to the origin of parliaments, to the customs of his country, and to the

the different lines of kings who have reigned in England^b.”

In the eventful pages of her history, England presents some of the most interesting scenes that the annals of the world can produce. In this country liberty has maintained frequent and bloody conflicts with despotism; sometimes she has sunk oppressed under the chains of tyrants, and sometimes reared her head in triumph. Here Charles the first, in defiance of all justice, brought to the scaffold, and James the second, compelled by the voice of his injured people to abdicate his throne, have given awful lessons to sovereigns. Here kings and subjects, after engaging in the warmest opposition of interests, have made mutual concessions; and the prerogative of the one, and the privileges of the other, have been fixed upon the solid basis of the public good. In the midst of civil commotions, as well as in the intervals of tranquillity, Science, Genius, and Arts have flourished, and advanced the national character above that of the neighbouring states. For this is the country of men most deservedly renowned for their talents, learning, and discoveries, to whom future generations will bow with respect and veneration, as to their guides and instructors. In this island Shakespeare and Milton displayed their vast powers of original genius, Locke developed the faculties of the mind, and Newton explained and illustrated

^b Memoirs of the House of Brandenburg.

the laws of nature. Here were trained those adventurous Navigators, who have conveyed the British flag to the extremities of the globe, added new dominions to their native land, extended the range of nautical science, and spread the blessings of civilization among the most remote people. Here mankind at large may contemplate a CONSTITUTION, propitious to the highest advancement of the moral and intellectual powers of man, which ensures personal safety, maintains personal dignity, and combines the public and private advantages of all other governments.

This constitution, which has so powerful and so happy an influence upon the character, sentiments, and prosperity of the British nation, arose from the conflict of discordant interests, and was from time to time improved by the wisdom of the most sagacious and enlightened legislators.

Attracted by a subject so dear to Britons, let us take a short view of those memorable reigns of our Kings, during which such laws were passed as form the basis of our political and religious liberties. Thus we shall see the Constitution gradually developed, and shall be able to form a correct opinion of its principles, and to estimate its advantages. The youths of the United Kingdom cannot view the history of their country too early in this light, since, next to the knowledge of the evidences and duties of their religion, the knowledge of the constitution of their country “should grow

grow with their growth and strengthen with their strength."

From the vast and gloomy forests of Germany, Hengist and his brother Horsa, said to be descended from Woden, the Saxon God of War, were invited into Britain by Vortigern, one of the petty princes, to aid him in repelling the attacks of the Scots and Picts^c. These warlike chieftains performed the service for which they were paid; but observing the indolence of the Britons, and pleased with the fertility of the soil, they invited more of their countrymen to endeavour to make settlements in the island. Successive hordes of Saxons poured in, and for a century waged war with the unhappy natives: they were finally successful in founding seven states, known by the name of the Saxon *Heptarchy*; but for this fortunate termination of their wars, they were as much, if not more indebted to the dissensions among the British princes, as to their own prowess. Such Britons as were timid submitted to the laws imposed by their conquerors; while those who were of a more untractable and ferocious temper retired to the inaccessible mountains of Wales, and there enjoyed and transmitted to their descendants their language, manners, and independent spirit. At the beginning of the ninth century, a uniform system of government was established by Egbert, who reduced the Heptarchy, either by

^c A. D. 477.

war, or by the submission of the different states, and formed the Kingdom of England^d.

As far as we are able to discern the imperfect traces of Saxon customs and establishments, by the dim light of Roman and English history, we are struck with their mildness, equity, and wisdom. The descent of the crown was generally hereditary, the subordinate magistrates were elected by the people, capital punishments were rarely inflicted for the first offence, and their lands were bequeathed equally to all the sons, without any regard to primogeniture. In the *Wittena Gemote*, or assembly of the Wise Men, consisting of the superior Clergy and Noblemen, all business for the service of the public was transacted, and all laws were passed. For the origin of this assembly, we must have recourse to remote antiquity; as similar meetings, constituted indeed in a rude and imperfect manner, were convened among the ancient Germans from the earliest times.

ALFRED, surnamed the great, derived that title from the exercise of every virtue which can adorn a king. When he succeeded to the throne, surrounded by numerous bands of hostile Danes, whose sole delight was plunder, he had ample scope to display his extraordinary talents. Disguised in the garb of a minstrel, he entered the Danish camp, remarked the supineness and negligence which reigned there, assembled his followers in Selwood Forest, and routed the plunderers with

^d A. D. 828.

great slaughter. He was present at no less than fifty-six battles, many of which when on the point of being lost, were retrieved by his own personal valour and military skill. After expelling the Danes from his shores, and establishing a fleet to guard his coasts, he directed his attention to the internal regulation of his kingdom*. He digested the discordant laws of the Heptarchy into one regular system, and adopted a uniform plan of government. He divided his kingdom into counties, hundreds, and tythings. These tythings were so called, because every ten freeholders, with their families, were formed into one distinct body, and were responsible to the King for each other's good behaviour, and were obliged, in case of any offence, to produce the offender; or if he fled, to clear themselves, as in no respect partakers of his guilt or privy to his escape; or else they were compelled to pay his forfeit, or *frank pledge*, to the crown. Every freeman was reckoned an outlaw if he was not a member of a tything. No plan could have been better devised than this mild and effectual one, to prevent and punish all such crimes and offences as had been common before Alfred's reign. Of the institutions, which he either begun or confirmed, the most remarkable and the most celebrated was the *Trial by a Jury* of twelve men of the same rank and condition with the person accused, and taken from the neighbourhood of the place where the offence was committed. Thus his subjects were exempted from the arbitrary sentence of a judge; and the determination of their inno-

* A. D. 872.

cence or guilt was left to a competent number of men too numerous to be bribed, and whose unanimity could leave no doubt as to the equity of their decision.

Alfred, with a view to the civilization of his subjects, as we have before observed, gave great encouragement to learning^f. He invited many learned men to reside in England, and is said to have laid the foundation of the University of Oxford. He was himself, considering the age in which he lived, an accomplished scholar, as his works now extant can prove. Adopting his studies to the instruction of his people, he translated into Saxon the fables of Esop from the Greek, the histories of Bede and Orosius, and the Consolations of Philosophy by Boethius from the Latin. The detail of the wonderful changes of his fortune, his valour in repelling the Danes, and the consummate wisdom of his government deserve a volume, nor would a volume exhaust the topics of his praise: in every view of his character, he was one of the best, the bravest, the most accomplished, and the wisest men that ever sat upon a throne.

The rash and precipitate conduct of Harold in risking his crown upon the issue of a single battle, gave to William, Duke of Normandy, the kingdom of England^g. The conqueror secured his victory by loading the Saxons with the heaviest chains of the feudal laws, and imposed upon all the proprietors

^f Vol. i. p. 516.

^g A. D. 1066.

of land various hardships unknown before to England; but which were the subjects of complaint and opposition for many ages after the conquest. A proper acquaintance with the feudal system, which was at that time common to all the continent of Europe, conduces materially to illustrate the history of those times, and to explain not only the antient, but much of the present tenure of property. For a particular account of it, we refer to our history of modern Europe.

With the Norman language, which was adopted in the courts of justice, were introduced the Norman laws. The antient trial by jury was superseded by the uncertain and unjust decision by single combat, a practice which was established by law, and conducted with regular ceremonies and forms of devotion. The extinction of all fires at the melancholy sound of the curfew, or evening bell, was a striking emblem of the extinction of liberty. The nation groaned under every distress that a politic and obdurate conqueror could inflict; and their chains were so firmly rivetted, as to require a degree of energy and unanimity to break them, which the oppressed Saxons had not sufficient resolution to exert. The conqueror not only broke the line of hereditary succession to the crown of England, but reduced the people to the most abject slavery. The confiscation of the estates of the Saxon nobles indicated both his policy and rapacity. He caused a particular survey to be made of all the lands in the kingdom, with a distinct

tinct account of their extent and value, and the names of the proprietors. This curious record, called *Doomsday Book*, or *Domus Dei Liber*, is preserved in the Exchequer, and has been printed. These lands were divided into 60,215 military fiefs; some were reserved by the Conqueror for himself; and the rest were bestowed upon his Norman followers, to be held under the obligation of each vassal taking arms, and appearing in the field, whenever the king raised his standard of war. Of hunting William was fond to an extravagant degree. He seized upon more than 30 miles of country in Hampshire, turned out the inhabitants, exposed their cultivated fields to waste, destroyed the houses and churches, in order to make the New Forest a fit habitation for beasts of the chase. His laws sufficiently proved the selfishness of his pleasures, and the cruelty of his temper; for he debarred even his nobles from hunting in his forests; and the killing a deer, a wild boar, or even a hare, was punished by putting out the eyes of the offender. To gratify his avarice, he levied the severest penalties upon all who presumed to kill game without his permission^b. In the new forest his second son, William II. surnamed Rufus, suffered the same kind of death as the animals which had so often fallen beneath the weapons of himself and his father. As he was pursuing a stag full speed, Walter Tyrell, a French knight, shooting

^b William the Conqueror was crowned in 1066, reigned 21 years, and died in 1087, aged 61.

at the same stag, pierced the king through the heart with an arrow, which caused his immediate death. His brother and nephew died by accidents no less extraordinary: and it has been remarked, that the Almighty was pleased thus to punish the family of the Conqueror for destroying and laying waste the country, and oppressing the people.

In the following reigns of the Norman kings the same hardships were endured with little alleviation. The people still continued to have no resource against the execution of the most sanguinary laws. The exorbitant power of the king, and its frequent abuses, at length roused a spirit of opposition, which was at once determined and irresistible. But as his feudal demesnes were large, and his influence extended over a great number of vassals, the great barons and their dependents did not think themselves sufficiently formidable to oppose his authority, without securing the co-operation of the other possessors of land. They therefore held out to the commons the most advantageous inducements, by promising to stipulate with the king for a redress of all public grievances, and an augmentation of their common privileges.

In Runnimede, between Windsor and Staines, the great foundation of English liberty was laidⁱ. There the reluctant king John, the youngest son of Henry II. and brother and successor of Richard

ⁱ A. D. 1215.

Cœur de Lion, after having repeatedly disregarded their former solicitations, was compelled to sign *MAGNA CHARTA*, and the *CHARTER OF THE FOREST*. The arm of force and terror, which his barons held over his head, was strengthened by the claims of justice. As all the kings from the conquest had solemnly sworn at their coronation to revive the laws of Edward the Confessor, the barons conceived themselves justifiable, when their adherents were sufficiently strong and numerous, in demanding from John, by the power of the sword, the full execution of his promise.

The abject and servile state of the people previous to this auspicious event is sufficiently evident, from considering the immunities granted by *Magna Charta*, and the *Charter of the Forest*. The barons vindicated more of their rights than merely consisted in the abolition of their own hardships and grievances. Firm in their engagements to the commons of the realm, they obtained for them the participation of many of their own privileges. They were equally exempted from unreasonable fines for services due to the crown, as well as from the cruel penalties of forfeiting their lives or their limbs for killing game; and they had the privilege confirmed to them of disposing by will of the greater part of their personal property. The provisions of *Magna Charta* enjoined, that one weight and one measure should be used throughout the kingdom, gave new encouragements to commerce, by the protection of foreign merchants; prohibited all
delay

delay in the administration of justice; fixed the court of Common Pleas, at Westminster, that the parties in a law-suit might no longer be harassed with following the king from place to place; established annual circuits of judges; confirmed the liberties of all cities and districts; protected every freeholder in the enjoyment of his life, liberty, and property; unless they were pronounced by a jury of his equals to be forfeited to the laws of his country^k; and made a stipulation in favour of the property of men, who had before been considered to have no rights whatever, by enacting that the bondmen or slaves should be kept in the unmolested possession of their implements of husbandry.

Thus was the first general opposition successfully made against arbitrary power; and those rights were acknowledged and established, which the English had enjoyed before the conquest. As Magna Charta was granted under circumstances of great solemnity, and afterwards ratified at the be-

^k “ Nullus liber homo capiatur, vel imprisonetur, vel disseisietur de libero tenemento suo, vel libertatibus, vel liberis consuetudinibus suis; aut utlagetur, aut exulet, aut aliquo modo destruatur. Nec super eum ibimus, nec super eum mittemus, nisi per legale iudicium parium suorum, vel per legem terræ. Nulli vendemus, nulli negabimus, aut differemus iudicium, vel rectum.” Magna Charta, cap. 29. “ This article is so *important*, that it may be said to comprehend the whole end and design of political societies; and from that moment the English would have been a free people, if there were not an immense difference between the making of laws, and the observing of them.” De Lolme on the Constitution, p. 28.

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ginning of every reign, it was a sacred pledge deposited in the hands of the people, for the equitable government of their kings. Unlike those traditional edicts, which admitted of any colour of interpretation that might suit the caprice, the folly, or the necessity of absolute monarchs, this celebrated Charter was a public and conspicuous record, to which immediate appeal might be made to determine the right of subjects to a redress of grievances, and the free administration of justice. It was the root, from which salutary laws gradually branched out, as the state of society became more civilised, for the protection and security not only of the proprietors of land and of merchants, but of persons of every rank and degree in the kingdom¹.

In the reign of Henry III. which continued fifty-six years^m, which was of longer continuance than that of any other English monarch, and was remarkable for continual instances of the caprice and incapacity of the king, and his contests with his haughty and powerful nobles, we may discover some of the earliest traces of a representative legislature. The captive monarch, intimidated by the sword of the imperious Simon Montford Earl of Leicester, issued orders for every county to depute persons to assist him and his nobles in their deliberations on

¹ John reigned 19 years, and died at the age of 51, A. D. 1216.

^m From 1216 to 1272.

state affairs. Thus to the distractions and troubles of these disastrous times, England is indebted for the representatives of the people being first called to parliament.

The more regular establishment of the House of Commons may however be referred to the succeeding reign of EDWARD THE FIRST. Strongly actuated by the martial spirit of his age, he engaged in long and expensive wars against Wales and Scotland, in consequence of which his treasury was exhausted, and his only resource for regular supplies was found in the contributions of his subjects. But as the mode pursued by his predecessors of filling their coffers had been both odious, and in a great degree inefficient, he devised a method of obtaining by their own consent what had formerly been wrested by the arbitrary mandate of the king. With this view, in the eleventh year of his reign, the mayors and other officers of cities were commanded by writ to cause two burgessees to be elected, and sent to Westminster; and in his eighteenth year, the sheriffs were required likewise by writ to cause two or three knights to be chosen, and sent from their respective counties^a. The object of this Parliament was to provide for the pecuniary wants of the King, and to ratify the resolutions made by himself and his barons. He like-

^a See Rymer's *Fœdera*, vol. ii. p. 249, for a copy of the former writ, and Brady's *Introduction*, for a copy of the latter, p. 149.

wise annexed an important article to Magna Charta, by which he bound himself and his successors not to raise any subsidies whatever, without the approbation of both Lords and Commons. Several excellent laws for the ease and benefit of all ranks of his subjects were passed in this "general parliament," which gave the greatest satisfaction to the whole body of the nation, and gained Edward the entire affections of his people^o.

The character of Edward the first was marked not only by the bravery of a warrior, but the more useful and profound talents of a legislator. From the praise, which many writers give to him, some share must be deducted on account of the necessities to which he often exposed himself by his wars. He ratified both the charters, and observed their conditions with a scrupulous exactness, which formed the distinguished glory of his reign. He afforded a free and extensive scope to the exercise of the statutes of the realm, surrendered a part of his right of sending mandates to arrest the progress of justice; and, as a decisive proof of his respect for the laws, and his desire to promote their impartial administration, he caused his son the Prince of Wales to be publicly apprehended and imprisoned for breaking down the fences and killing the deer of Walter de Langton, Bishop of Litchfield and Coventry^p.

^o A. D. 1275.

^p A. D. 1305. Rapin, vol. i. p. 383. fol.

It is natural enough to conclude, that as at this period the members of both Houses of Parliament held their deliberations under the authority of a wise and well-disposed sovereign, they would make the great interest of the nation at large the subjects of their debates, and thus improve the science of legislation. Accordingly we find that they gave their attention to many plans of great public utility; they passed laws for establishing manufactures in various parts of England, for supporting the parochial clergy by the endowment of vicarages, and for restraining the encroachments and the rapacity of the see of Rome. Every succeeding generation has expressed its applause of Edward the first, and felt the benefits of his wise and salutary institutions. By him the laws were carried so far towards perfection, that he has been styled the *English Justinian*. Sir Matthew Hale did not scruple to affirm, that more was done in the first thirteen years of his government, to settle and establish the distributive justice of the kingdom, than in all the ages down to his time^a.

To trace the progress of the increasing privileges of the House of Commons, we must have recourse to particular facts. In a tone of bold and just complaint the two Houses of Parliament called upon the weak and unfortunate Edward the second to banish Gaveston, his insinuating but licentious favourite, from his court. This was the first exercise

^a Crowned in 1272, reigned 35 years, died in 1307, aged 68.

of that important privilege, which consisted in the impeachment of the suspected ministers of the crown. By the petition annexed to their bills for granting subsidies to Edward the third and Henry the fourth, the House of Commons claimed a proportionable share of the legislation with the King and the House of Lords, by making bills for pecuniary supplies originate with themselves.

In the martial reign of EDWARD THE THIRD, the parliament is supposed to have assumed its present form by a separation of the Commons from the Lords. The celebrated statute for defining and reducing to precise offences the vague notions which had before prevailed in the courts of justice, upon the subject of high treason, was one of the first acts passed by the two distinct Houses of Parliament. Many laws were likewise made for depressing the civil power of the pope, for securing personal property, and the interests of trade and commerce. During this reign Magna Charta was ten times confirmed; and this repeated ratification conferred more glory upon the king, than all his victories obtained in France and Wales^r.

The glorious victories of CRESSY, POITIERS, and AGINCOURT, cannot fail to engage our attention, and fill the mind of an Englishman with the highest and most favourable opinion of the

^r Crowned 1327, reigned nearly 51 years, died 1377, aged 65 years.

valour of his ancestors^s. The laurels reaped by an Edward III^d. and a Henry Vth, in the fields of France, are still fresh and unfading; and the voice of fame will proclaim their exploits to the remotest posterity. Scenes of intestine commotions succeeded: and the Houses of York and Lancaster and their adherents combated with the malice of demons, and the fierceness of barbarians. The country was abandoned to the desolations of war for the last twelve years of the reign of Henry VI. and a considerable part of that of his successor Edward IV. The blood of the noblest families was shed in the battles of St. Alban's, Wakefield, Towton, and Tewkesbury; but no advantage accrued from such fierce and long continued contests to the general good of the people. The voices of law and humanity were too weak to be heard amid the clash of arms; and the incredible slaughter made on both sides was a melancholy and a fatal proof of the prevalence of the feudal system, and of the alacrity with which the people flew to battle, whenever the standards of the white and the red roses were displayed by the hostile competitors for the crown.

While, in this early part of our history, we remark the exorbitant influence of a martial aristocracy, and the indiscretion and violence of some of the kings, whose measures they controuled more

^s The victory of Cressy was gained in 1346; Poitiers, 1356; Agincourt, 1415.

frequently from motives of self-interest, than ardour for the public good, let us not forget to pay the tribute of justice to unfortunate monarchs. The castles of Berkley and Pomfret, and in a later age, the tower of London witnessed the sufferings of Edward II, Richard II, and Henry VI, and were stained with their foul and nefarious murders. The temporising members of the parliaments, who had deposed them, denied them even the privilege of common subjects, and refused to hear them in their own defence. The acts passed for deposing them was virtually an order for their execution; as the experience of ages has proved, that to a monarch, when the allegiance of his subjects is withdrawn, the passage is short from the throne to the grave. Although neither Edward II, nor Richard II, were much beloved in their prosperity; yet, by a change of opinions, natural to mankind, their sufferings, aggravated by an unjust, an untimely and cruel death, excited the pity, and even the veneration of their subjects. The proceedings of the Houses of Parliament upon these occasions proved the wretched defects of the laws, and the uncontrolled power of the vindictive sword. The fortunate Pretender to the crown, however black his perjury, or flagrant his rebellion, was allowed and even encouraged to trample upon the rights of humanity and justice, and wrest the sceptre from his lawful sovereign. Yet after these severe conflicts, the royal prerogative regained its ascendant: the general liberties of the subject were disregarded, and all orders of the state united with
equal

equal fervility to prostrate themselves before the throne, and to present their swords and their estates to the disposal of the conqueror.

The succession of the Tudor family to the crown produced some important acquisitions to the cause of domestic tranquillity and freedom. Henry VII. descended from John of Gaunt, Duke of Lancaster, married the princess Elizabeth, eldest daughter of Edward IV. and by this union happily put an end to the civil wars of York and Lancaster. The conduct of Henry was influenced by refined policy, as he weakened the power of his nobles, by permitting them to alienate their lands. This privilege, as we have remarked in our survey of the feudal system, gave a deep and incurable wound to that institution, and raised the respectability of the lower orders of the community, who were enabled, by their increasing trade and commerce, to become the purchasers of estates. By dividing the lands among many proprietors, a competition of small interests was produced; and those formidable confederacies of the great barons, which had so frequently excited the alarms of kings, and subverted the throne in former ages, were prevented by this salutary measure, or at least rendered very difficult to be formed^t.

The conduct of HENRY VIII. exhibited a perpetual struggle of violent passions. The condem-

^t Won the crown in Bosworth Field in 1485, reigned 24 years, and died in 1509, aged 53 years.

nation of two of his queens, of the gallant and accomplished Lord Surry, and of the facetious and learned Sir Thomas More, must consign him to the hatred of posterity. As a reward for writing against Martin Luther, he gained from Pope Leo X. the title of Defender of the Faith; and, thirteen years after, with the approbation of his parliament, he renounced the authority of the see of Rome, and was declared supreme head of the Church of England. His passion for the beautiful and unfortunate Anne Boleyn induced him to free his kingdom from the shackles of papal supremacy, and began the reformation of religion, which was established in the reign of Elizabeth. This event formed a new and extraordinary epoch in the English history. It repressed the inordinate power of the Clergy, abolished the monastic orders, and, by founding religious principle upon reason and Scripture alone, improved the manly seriousness and inherent dignity of the British character. The reformation was highly favourable to civil as well as religious rights, and encouraged that spirit of free inquiry, from which it derived its origin. Men, who had the intrepidity to demolish the fabric of popery, supported as it was by the antiquity of its establishments, the splendour of its ceremonies, and the sacred character of its ministers, were not to be checked in their researches into the imperfections and abuses of government. The seeds therefore of political inquiry and innovation were deeply sown; and although they were for some time

time checked in their growth, as all orders of his subjects bowed with the most abject fervility before this impetuous and tyrannical monarch, yet in succeeding times their fruits sprung up in the greatest abundance^u.

Splendid as the reign of ELIZABETH appears, with respect to her transactions with foreign countries, she inherited the temper of her father: the imperfections of her mind were those for which the Tudor family was remarkable, and she ruled with the most despotic sway. Uncontrollable in the indulgence of her passions, and by turns the slave of love and hatred, she sentenced her favourite the Earl of Essex to death, and consigned to a miserable and tedious imprisonment, and finally to the axe of the executioner, a cousin and a sovereign, whose charms excited her envy, and the suspicion of whose conspiracies provoked her revenge. Mary, queen of Scotland, many particulars of whose history are perplexed by contradictory accounts, and involved in obscurity, has been made the object of admiration, as much perhaps on account of her misfortunes, long captivity, and cruel death, as her incomparable beauty, sweet disposition, and excellent understanding^w. The nobles feared

^u Henry VIII. was crowned in 1509, reigned 38 years, died in 1546, aged 56.

^w The learned Camden, a contemporary writer, ascribes to her a constant steadiness in religion, a singular piety to God, an invincible greatness of mind, and a wisdom above her sex, be-

feared and venerated Elizabeth; and the members of her House of Commons, more obsequious to her demands and caprice than the ancient parliaments of Paris ever were to the dictates of a French monarch, assembled only to learn and obey her will, and to tax their constituents for her support. Her subjects were exempted from the privileges and cares of political power; and, at once dazzled by the splendour of her court, and the success of her arms, the strength of her understanding, and the masculine intrepidity of her temper, were blind to her obstinacy, avarice, and cruelty*.

JAMES I. son of Mary Queen of Scots and of Henry Stuart, Lord Darnley, was remarkable for mildness of disposition, and the frequent attention he paid to removing the grievances of his subjects^y, in which circumstance he afforded a

sides her personal charms. Carte, as if enamoured of the subject, has drawn her character with a degree of eloquence far superior to his usual style. Vol. iii. p. 619. Appendix, p. 817. I have heard Mr. Thomas Warton say—"You may read Hume for his elegance; but Carte is the historian for facts." My perusal of his elaborate work has fully confirmed the truth of this observation: and I think him a writer particularly well adapted to the present times of political novelties; as he is an intelligent and zealous advocate for the *rights* of *kings*, as well as *subjects*; and maintains upon all occasions the honour and dignity of the *Church of England*.

* Crowned 1558, reigned 45 years, died 1603, aged 70.

^y "Sir Edward Coke, at a time when he was out of favour and a malecontent, declared, that he never knew any complaint made to the king of any abuse out of parliament, but he gave orders immediately to have it reformed." Carte, vol. iv. p. 129.

striking

striking contrast to his immediate predecessors. In his pacific reign many encroachments were made upon the royal prerogative; or rather all the different orders of his kingdom began to feel their own importance, and were determined to exert their power^z. The flourishing state of commerce raised the merchants to great respectability; and their rapid increase of wealth naturally claimed suitable distinctions and privileges. The members of corporations were active in extending their rights and privileges: the citizens of London were not so dazzled by the condescension of their royal master in becoming a member of a company of merchants, as not to solicit large concessions from the throne. The spirit of fanaticism, discontent, and ambition, prevailed in the House of Commons; and all the actions of the King, and his immediate successors, their folly or wisdom, their virtues or their vices, were equally exposed to complaint and opposition^a. The caprice of his temper, and the unsteadiness of his conduct, appearing at one time resolved upon measures, which at another he retracted;—writing one day to his House of Commons in a peremptory strain, and soon after sending them letters replete with concession and apology; gave great advantage to the artful supporters of the puritanical party, and encouraged them in the pursuit of their designs against the Church and the State^b.

^z A. D. 1602.

^a A. D. 1625.

^b James I. was crowned King of England in 1603, reigned 22 years, died in 1625, aged 59.

Such

Such was the threatening aspect of affairs, when CHARLES the Ist. assumed the reins of government. It was his misfortune to ascend the throne at a period, when no experience of his predecessors could be fully conclusive, as to the measures most proper to be adopted; and when the constitution of the country was in reality undergoing an alteration, while it appeared to be the same as in preceding times. Those who succeeded him discovered the change, and took proper steps to prevent its unhappy consequences: but the discovery, though afterwards easy to be made, was perhaps at that time placed out of the reach of human sagacity. The good qualities of Charles were more calculated to accelerate than to retard the fury of the storm, which threatened, and soon burst around him. Too scrupulous an adherence to his rights as a king, and his extraordinary zeal for the Church of England, contributed to introduce a train of events, fatal to himself, and disastrous for a time to his country.

In the early part of his reign, he was induced to exercise with too much severity that undefined prerogative, over the odious part of which the cautious Elizabeth had drawn a veil, but which her successor James had exerted with ostentatious parade upon trivial occasions. However inquisitorial the constitution of the Star Chamber and the high Commission Court was, or however rigid the punishments, which they denounced against state offences; their authority was fully sanctioned by ancient customs.

customs. Few if any clamours had been raised against their proceedings during the reigns of former sovereigns. But, unhappily for Charles, the decrees of the Star Chamber at first excited popular invectives and tumult, and finally provoked a steady and determined opposition. The people called with a peremptory voice for a general redress of grievances. It ought for ever to be remembered, that this call was obeyed, and that the fullest concessions were made on the part of the King previous to the great rebellion. But as suspicions were entertained of the sincerity of his declarations, his concessions to the parliament, connected with some rash actions and unguarded expressions, were looked upon rather as the result of compulsion than of choice. Cromwell, Fairfax, Ireton, and all the popular leaders, therefore, failed not to embrace an opportunity so favourable to their ambition. They fired the minds of their party with fanaticism and disloyalty, and plunged the nation into all the horrors of a civil war. The refusal of Charles to resign the appointment of officers in the militia, was a signal for the commencement of hostilities; and the royal sword was finally drawn for the maintenance of what the king deemed a just prerogative, long after the parliament had recourse to arms. The last scene of this tragical period is such as the humane historian must lament to record, and the friend to regal government must peruse with reluctance and horror; for it was closed with the solemn mockery of an illegal trial,

trial, and the murder of a pious, an amiable, and an accomplished monarch upon the scaffold^c.

The violent convulsion, which subverted the throne of Charles, afforded an ample field of action to the abilities of the politic and hypocritical CROMWELL. He not only sought his safety in the destruction of the king, but established a complete despotism upon the ruins of the regal power. Under his conduct the army, as the pretorian bands had acted in the Roman empire, overawed the clamours of contending factions, and gave a master to their distracted country. The talents, courage,

^c January 30, A. D. 1648,

Excidat illa dies ævo, nec postera credant

Sæcula, nos certe taceamus, & obruta multâ

Nocte tegi propria patiamur crimina gentis.

King Charles I. had reigned 24 years, and was 49 years of age. Lord Clarendon concludes his character in these words: "He was the worthiest gentleman, the best master, the best friend, the best husband, the best father, and the best Christian, that the age he lived in produced."—Clarendon's History, vol. iii. p. 199. This eminent Writer is supposed by some to have recorded rather a vindication of Charles, than an impartial History of the Rebellion, but a proper examination of his work will show that he was not much influenced by any bias in favour of the unfortunate Monarch. There are, it is true, some palliations and softening expressions with respect to the King, but Clarendon has given as free an opinion of the origin of the Civil War, as any Republican could have done. Speaking of the illegal proceedings of the Star Chamber, he says, "those foundations of right by which men valued their security, to the apprehension and understanding of wise men, were never more in danger of being destroyed." Book I. p. 67.

and

and political skill of the Protector shone equally in his conduct at home, and in his transactions abroad; and no prince who ever swayed the sceptre of this nation impressed the potentates of Europe with a more lively sense of the energy of the English councils, or the terror of the English arms. His fleets repeatedly triumphed over the hardy Dutch, he took the island of Jamaica from the Spaniards, and it is said, that Cardinal Mazarine the French Minister, used to change colour whenever he heard the formidable name of Cromwell. To add to the wonders of his extraordinary history, amidst the alarms and the exertions of returning loyalty, he died a natural death, while he was attempting to convert a military government into one more congenial to the temper of his countrymen. The third day of September was a day both fortunate and fatal to him; on that day in 1650 and 1651 he gained the two great victories over the Scots at Dunbar, and the Royalists at Worcester, and on that day in the year 1658 he expired^d.

The conduct of the parliament after the Restoration at first sight appears to have been highly

^d He was 59 years old, and had usurped the government nine years. His character by Lord Clarendon is thus concluded: "In a word, as he was guilty of many crimes, against which damnation is denounced, and for which hell-fire is prepared; so he had some good qualities, which have caused the memory of some men in all ages to be celebrated; and he will be looked upon by posterity as a *brave wicked man*." History of the Rebellion, vol. iii. p. 509.

incon-

inconsistent. In the former part of the reign of Charles II. he was flattered by their most abject devotion to his will; and towards the conclusion of it, he was assailed by their determined opposition. But the apparent inconsistency of their conduct may be reconciled by adverting to the alteration of circumstances. The people, rescued from the despotism of Cromwell, and the oppression of his emissaries, were led, by the extravagance of their joy, after the re-establishment of the ancient royal family, to express the most complete submission to the will of their Sovereign, and to testify the most ardent wishes to exalt the crown above the attacks of popular rage. But when the projects of the King to introduce popery and arbitrary power were detected, they suddenly awoke to a full sense of a danger, which appeared as alarming as that they had so recently escaped.

The tide of popular opinion therefore turned with violence against the King, who with his brother, James Duke of York, was nearly carried away by its current. The Commons boldly exerted their privileges. To the attention, which they paid to the oppression of an obscure individual, England is indebted for the final improvement of the act of *Habeas Corpus*^e. It is so called because

^e This person was Francis Jenks, who having made a motion at Guildhall in the year 1676 to petition the king for a new parliament, was examined before the Privy Council, and after-

because it begins with these words. It allows the prisoner to have a copy of the warrant of his commitment to prison, rescues him from unnecessary delay of trial, imposes a penalty upon any judge who shall refuse a writ of Habeas Corpus, and exempts the prisoner from being confined in any distant country. This may be regarded as an invaluable addition to Magna Charta; and the attentive reader of our history will not fail to remark, that such measures as these were taken to extend the sphere of liberty, during the reign of arbitrary princes. The same spirited House of Commons impeached the earl of Danby, who had basely been instrumental in making his master a pensioner of France; they declared their hostility to Popery, and deliberated upon the exclusion of the Duke of York from the Crown, in consequence of his avowed attachment to that religion, and his marriage with a Papist.

The death of the witty and dissipated Charles II. while annulling the charters of great towns, and meditating schemes in order to make future parliaments obsequious to his inclination, saved him from the resentment of his disappointed and indignant subjects. The conduct of James II. congenial in his principles, and more bold in the avowal and

afterwards committed to the Gatehouse, where he was kept about two months, through the delays made by the several Judges to whom he applied, in granting him a Habeas Corpus.

De Lolme, p. 362.

the

the execution of his designs than his brother, met with its due reward^f. The established religion of the country was insulted by the erection of a Popish chapel in the midst of the royal camp; the rights of election were infringed by the despotic appointment of a Popish president to Magdalen College in the University of Oxford; the privileges of parliament were violated by a standing army, maintained in the time of profound peace, without their consent; and the exercise of the right of subjects to present petitions to the king was punished by the imprisonment of six bishops in the tower. Popery and slavery seemed to be again returning with hasty steps; and the spirit of determined opposition was roused to check their advances. WILLIAM, prince of Orange, son of William of Nassau, and of Henrietta Maria, daughter of Charles I. was invited to share the throne with Mary, the daughter of James. The king, struck with consternation at the desertion of his army, his fleet, and even his own children, threw up the reins of government, and was indebted to the clemency, or perhaps the policy of his enemies, for a secure escape into France^g.

The reign of the Stuarts consisted in a continued struggle for power between the Monarch and his

^f Charles II. reigned 24 years after the Restoration, and died in 1684, aged 55.

^g James II. reigned 3 years, 9 months and 11 days, and abdicated the throne in 1688.

subjects.

subjects. The public mind was kept in a constant state of fermentation; and the times, however favourable to the exercise of political skill and courage, seemed to allow no leisure for the cultivation of the intellectual powers, or the growth of knowledge. Yet amid the turbulence of this period was founded the *Royal Society*, an institution, which has been particularly favourable to the promotion of science and genuine philosophy. The revolution was a most distinguishing epoch in the history of England, as it altered the line of succession by a power immediately derived from the people, and gave such an ascendant to their liberty, as to extend its influence, secure its continuance, and place it upon a solid and durable foundation. The means by which it was accomplished, without the effusion of blood, at least upon English ground, were as extraordinary as the importance of it was great, not only to Britain, but to the common interests of Europe.

At the auspicious moment, when William III. gave his assent to the *Bill of Rights*, the fabric of the constitution was completed. The most valuable parts of the feudal system, and the recent plans of liberty, were consolidated in one consistent and uniform mass of jurisprudence^a. The privileges of the people, and the prerogative of the king, were weighed in the balance of justice; and were ascer-

^a A. D. 1688.

tained and defined, not so much by prescription on the one hand, or the predominance of a democratic party on the other, as by the more enlarged and moderate principles of reason and expediency. The important change then introduced into the succession to the throne was calculated to exclude the repetition of such an event, against which the laws had not before provided a remedy. That the crown should never more be possessed by a Papist, was an important declaration made by the Bill of Rights: and with such alarming apprehensions did the Houses of Parliament view a monarch of that description, that they thought it necessary to deprive the future kings of England of the right given even to a subject of choosing his own religion. The arguments in favour of this restriction were cogent and irresistible. The religious liberty of the people was regarded as intimately connected with their civil welfare. A recent example had taught them, that the character of a Popish prince was inseparable from that of a despot; and they wished for ever to prevent the repetition of the wrongs and outrages, which had sprung from the union of bigotry with arbitrary power. Influenced by a spirit of moderation, and rather seeking a remedy for *past abuses*, than framing a government upon principles of *hazardous and untried theory*, they made few changes in the established laws. But they thought it a duty incumbent upon them to embrace this opportunity of giving their due strength, vigour, and authority, to the liberty of the subject. Accordingly, the power of the law above the will of the
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the king was fully declared, his dispensing authority was pronounced to be illegal, and the privileges of the subject to petition for a redress of grievances, and to provide for his self-defence, were guarded against violation, in the clearest terms. The king was invested with every power, which his predecessors had exercised over parliaments, corporations, the army, and the navy, except the power of doing injury; and his subjects were laid under those equitable restraints, which were most consistent with rational liberty. And to complete their independence, the privileges of Englishmen were not solicited as a favour, but asserted as an undoubted and inherent right. Allegiance and protection were declared to be reciprocal ties, and the dignity and honour of the king were interwoven with the security and happiness of his subjectsⁱ.

The reign of QUEEN ANNE was distinguished by a successful war against France, in which John Duke of Marlborough, one of the greatest generals, not only of his age, but of modern times, defeated by an uninterrupted succession of victories at the head of the allied armies of England, Germany, and Holland, the attempts of Louis XIV. to obtain universal sovereignty; and raised the renown both of himself and his country to the highest pitch of glory. This reign is also rendered memorable by the union of England and Scotland in the year 1706, and their joint representation in the parlia-

ⁱ William III. reigned 13 years, and died in 1701, aged 52.

ment of Great Britain—measures which the regularly increasing and uninterrupted prosperity of both countries have amply justified^k.

George the First, son of Ernest Augustus, first Elector of Brunswick, and the Princess Sophia, Grand-daughter to king James the First, ascended the throne with a mind happily disposed to govern his new subjects according to the maxims of their Constitution, but his good intentions were often thwarted by the party rage of the times. Equitable, mild, and prudent, he was the guardian of civil and religious liberty, and he derived great advantages from the sagacity and experience, which he had acquired before he obtained the Crown, and applied those qualities with success to extinguish the flame of rebellion^l.

George II. in the early part of his life fought under the great Duke of Marlborough, and as a Volunteer at the battle of Oudenarde, displayed the hereditary courage of his family, by charging the French troops sword in hand at the head of his squadron. When king, he defeated the designs of his enemies to subvert his government, by the wisdom of his councils, and the valour of his son the Duke of Cumberland.

He was a firm supporter of the liberties of Britain, and the general interests of Europe: He

^k Queen Anne died in 1714, aged 50, and reigned 13 years.

^l Reigned 13 years, died in 1727, aged 68.

closed a long and prosperous reign, when the terror of his arms, the extent of his Conquests, and the prosperity of his Empire had made the name of Britain renowned throughout the civilised world^m.

GEORGE THE THIRD, “born and educated in this country,” as he emphatically declared in his first speech to his Parliament, has distinguished his reign by making the Judges independent of the Royal will, as they are enabled to hold their situations for life. His patronage of the arts has been displayed in founding the Royal Academy of Painting: and the prosperity of the British empire is increased, and its stability confirmed by the Union with Ireland. He has ever protected the civil and religious rights of his subjects from violation or encroachment, and founds his glory upon the firmest basis by reigning in the hearts of his subjects, and maintaining the most amiable and the best of all human characters—that of being THE FATHER OF HIS PEOPLE.

Expedient as the steps taken at the Revolution might be to settle the government, it is unfortunate for the tranquillity of the country, that the event gave rise to political divisions. The Whigs and the Tories have since divided the kingdom, and kept alive the flames of party spirit. Possibly, however, in a free country like our own, where a wide field is opened for a rivalry of talents, and a competition

^m He reigned 33 years, died 1760, aged 77.

of interests, this conflict of parties may prevent evil, if it does not produce good. Were there no opposition to the measures brought forward in parliament, ministers if imprudent would want a salutary curb, or if negligent would want a spur; and no place would be found for that exertion of talents which takes its rise from difference of opinion. Whatever be the party, to which the Ministers of the Crown may belong, we may be certain, that they can secure the great and permanent prosperity of the nation, and their own true glory, only by a conscientious, and upright discharge of their duty. The history of the two parties is recorded by the Historian Rapin, a dispassionate and candid foreignerⁿ. His detail affords sufficient proofs how im-

ⁿ See Rapin, vol. iii. p. 796. Of his impartiality and candour there are many instances. In his Life of Edward III. vol. i. p. 418, and p. 436. See his remarks on the treaty of Bretigny—his Letter to Robethon at the end of vol. ii. and p. 807 of the Dissertation on Whigs and Tories. To extricate himself from some historical difficulties, he has laid down *two* excellent rules. He remarks that the national prejudices of our Historians are very rooted, chiefly upon two Articles—the violation of Treaties, and the success of Battles. For the former, where the truth was no other way to be discovered, he has frequently made use of a very natural maxim, viz. that it is not likely that the party to whom a Treaty is advantageous, should be the first to break it. As for the second Article, nothing is more common than to see Historians hesitate to own their nation vanquished, and they think it incumbent upon them to diminish their losses, or magnify their victories. On these occasions, when Rapin could not fix the success

impolitic as well as wicked it is in every statesman, while he holds the honours and treasures of the kingdom in his hands, not to prefer disinterestedness to corruption, independence to servility, and the public good to every consideration of partial and private advantage.

success of a battle by the consequences, he has taken care to inform the reader of the disagreement between the Historians. See Preface, p. 4.

CHAPTER XIII.

The Subject continued.

THIS transient and superficial view of the progress of the Constitution has enabled us to discover, that the rays of true liberty first illuminated our Saxon ancestors: the despotism of the Normans suddenly obscured this auspicious morning; but the sun of freedom broke through the gloom, and spread its beams over Runnimeade, where the barons nobly vindicated the rights of the people. The storms of civil war between the Houses of York and Lancaster raged with violence for a time, and darkened the political horizon with the most tempestuous clouds. But the sun of liberty again displayed itself at the Reformation, was again obscured by the conflict of King and people, and finally shone forth with meridian brightness at the Revolution.

The gradual progress of liberty in England was not more beneficial with respect to the government of the country, than conducive to the enlargement and freedom of opinion. The powers of the mind were directed with ardour and success to the examination of those rooted prejudices, which had been long received without sufficient reason. The strug-
gles

gles of contending factions gave birth to the exertions of Milton, Sidney, Locke, and Somers. These writers were the founders of new political schools; and we may rank among their disciples Montesquieu, Rousseau, Voltaire, and Franklin. If ever the American is disposed to boast of the freedom of his country, let him recollect, that the lessons of that freedom were taught him by the parent state. When the French maintain, that the plans of any of their varying forms of democracy since the revolution of 1789, originated solely in the abstract principles and deductions of reason, do they not forget that Britain first suggested to their legislators their best and most approved maxims of government: and that even at the present moment, while they boast of enacting the most equitable laws, they transcribe the Statute Book of this country? When an Englishman asks these questions, he indulges much nobler and more generous feelings than those of vanity or arrogance; for he experiences the most genuine satisfaction to observe, that the blessings he enjoys are not limited to his own country: and while he protests against any wrong conclusions which may be drawn from the principles of his own government, that may disturb social order, and lead to anarchy and confusion, he is happy whenever they are so judiciously reduced to practice as to promote the general welfare of mankind.

In tracing the stream of liberty from its lowest
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ebb to its highest tide, the different events, which have been brought forward in this short detail, are designed to suggest, rather than to state a variety of useful reflections. It is evident that the British constitution has reached its present state of improvement, not so much in consequence of the deep and refined speculations of philosophers and politicians, as by the concussion of discordant interests, and the hostility of contending parties. The struggles for power before the Revolution were very numerous, and in some of them the rights of *kings* were as flagrantly insulted as those of the *people*. The measures frequently employed for the destruction of the constitution, particularly in the reign of James II. were the means that ultimately strengthened its powers, and gave fresh vigour to its operations. The salutary tendency of many transactions, which contributed to its improvement, was probably neither foreseen by the agents, nor formed any part of their plans.

From the reign of John to that of William III. every attempt in the form of war, treaty, and accommodation, has been made to define the power of the royal prerogative; and the designs of every true patriot, whenever sincerely directed to the promotion of the good of the community, have ever been ultimately crowned with success. In a period the most disastrous in the modern part of our history, viz. the usurpation of Cromwell, the rights of property, which is the basis of our political establishment, were grossly violated

violated by a democratic faction. The populace were roused to arms to serve the ambitious purposes of hypocritical tyrants, and the monarchy was overturned. The events of past ages are recorded in vain, unless they afford useful lessons for the instruction of ourselves and our posterity.

The BRITISH CONSTITUTION deserves the grateful homage of every one who shares its blessings, and presents to the politicians, both of our own and other countries, the fairest theme of admiration and applause^o.

^o “The English,” said the illustrious *President de Montesquieu*, “are the most free people that ever were upon earth. England, of all the nations in the world, is that which has known how to make the most (all at the same time) of those three great things, religion, commerce, and liberty.” *Brissot*, who perhaps paid even with his life for the opposition of his actions to his opinions, says in his Letter to his constituents, “The English government, which I had investigated upon the spot, appeared to me, in spite of its defects, a model for those nations that were desirous to change their government. The work of M. *De Lolme*, adds he, which is no more than an ingenious panegyric upon this excellent constitution, was at that time in the hands of the learned few. It ought to have been made known to my countrymen; for to make it known was to make it beloved.” *Fas est et ab hoste doceri*. *Seward’s Anecdotes*, vol. ii. p. 386, &c. “Happy constitution! which the people who possess it did not suddenly obtain: it has cost them rivers of blood; but they have not purchased it too dear.” *Vattel* in his *Law of Nations*. See the equally impartial and honourable testimonies of *Philip de Comines*, *Rapin*, *De Lolme*, *Frederic of Prussia*, *Beaumelle*, the authors of the *Encyclopédie Méthodique*, &c. &c.

All

All the advantages of a representative republic are derived from the right of the people to choose their own members of the *House of Commons*, and from the important privileges which those members enjoy.

The *House of Lords* forms a middle link of the political chain between the King and the People, and is peculiarly useful when regarded as a barrier against the usurpations of arbitrary power on the one side, and the encroachments of popular licentiousness on the other. Considered as an assembly appointed for the revision of such measures, as may be brought forward with precipitation, either by the King or the *House of Commons*, they are of the highest importance to the state.

As the *King* is wholly dependent upon the other branches of the constitution for pecuniary aid, he is debarred from the execution of frivolous or ambitious projects, even were his ministers inclined to suggest them; and can only execute those plans, which are determined by the voice of the majority of his Parliament to be conducive to the good of the nation.

The constitution of England includes the essence of the three different forms of government which prevail in the world, without their attendant disadvantages; for we have democracy without confusion, aristocracy without rigour, and monarchy

chy without despotism. These principles are so compounded and mixed, as to form a political system, which is capable of producing more freedom, and true independence, than the renowned commonwealths of Athens and Rome could boast, or perhaps than was ever enjoyed by any other state in its highest prosperity and power.

Here then we behold that theory reduced to practice, which *one* great Politician of antiquity pronounced to be the best; and which *another* esteemed to be a fair subject of commendation; and yet if it ever should exist, he maintained that it could not be permanent. The duration, however, of our constitution for so long a period of time, has happily proved, and, by the favour of a gracious Providence, it is devoutly hoped will continue to prove to the most remote times, the fallacy of his prediction^p.

This

^p “Esse optime constitutam rempublicam, quæ ex tribus generibus illis, regali, optimo et populari, fit modice confusa.” Cicero Fragm. de Repub. lib. ii. “Cunctas nationes et urbes populus aut primores, aut singuli regunt: delecta ex his, et constituta reipublicæ forma laudari facilius quam evenire, vel si evenit, haud diuturna esse potest.” Tacitus, Ann. lib. iv. The original idea is to be found in Polybius: speaking of the three different kinds of government, the regal, the aristocratical, and the democratic, he says, *Δηλον γὰρ ὡς αἰρεσὴν μὲν ἡγήτεον πολιτείας τὴν ἐκ πάντων τῶν προειρημένων ιδιωμάτων συνεσῶσαν.* Polyb. lib. vi. p. 628. vol. ii. Edit. Casaub. Upon the nature of different govern-

This is the source of social order and comfort, and from it flow the invaluable rights of free-born Englishmen. These rights consist in the full enjoyment of security, liberty, property, and the impartial administration of the laws. The Englishman, whenever he is attacked, is not condemned to silence, or left unprotected. He can exercise a censorial power over his enemies, and speak, or publish his sentiments to the world. The courts of law are open to his complaints, and he may throw himself with perfect confidence upon the upright and impartial deliberations of a jury of his equals. He can petition the King and Parliament for a redress of his grievances, and he can keep arms for his defence suitable to his rank and condition. He thus enjoys all the privileges, which the social compact, when properly understood, can bestow, and his sphere of action is as enlarged as a good citizen can desire. It is indeed only confined within such limits, as guard him from actions, which would prove dishonourable to himself, and pernicious to the public^a.

This establishment is well adapted to the manners and character of the people. The freedom of spirit, which forms its basis and produces its glory; and the rational checks, which are laid upon the

governments, their origin and revolutions, this profound Author, whose works ought to be carefully studied by every statesman, has made some judicious remarks in his sixth book.

^a See Blackstone's Comment. vol. i. p. 50, 127. vol. iii. p. 60. vol. iv. p. 267, &c.

different branches of the legislature, accord' with that complexional boldness of disposition, which is corrected by our national sedateness and deliberation of Character. The temper of the people, like their climate, is variable and cloudy, continually exhibiting the most striking contrasts: but their principles of action, like those of their government and their religion, are permanent and fixed.

Stern o'er each bosom Reason holds her state,
With daring aims, irregularly great;
Pride in their port, defiance in their eye,
I see the lords of human kind pass by;
Intent on high designs, a thoughtful band,
By forms unfashion'd, fresh from nature's hand.
Fierce in their native hardness of soul,
True to imagined right, above controul:
While e'en the peasant boasts those rights to scan,
And learns to venerate himself as Man*.

The mild administration of justice, and the indulgence of the law to the accused, is correspondent with that national benevolence, which, at the call of distress and indigence, pours forth a stream of bounty with a degree of copiousness unknown in any other country. The equality of the laws, extending their control, their restraints, and privileges, from the throne to the cottage, cherishes the native dignity of the Briton, and increases the intrepidity of his character. This equality is moreover an incentive to every useful enterprise, and encourages that activity of mind and body, which

* Goldsmith's Traveller.

is natural to man. In the extension of trade and commerce to every quarter of the globe, in the perfection of manufactures, in the works of art, literature, and science, and in the execution of great projects which are recommended by the most distant prospect of public utility, the Englishman is ardent and indefatigable, and outstrips in the race of competition all other inhabitants of the earth.

Such is the prospect of the British Government, and such are its transcendent advantages and benign effects. Still, however, we are accustomed to hear complaints of the prevalence of various political evils, and public grievances. There are some indeed, which the enemies of their country exaggerate with a malevolent pleasure, and others which its friends acknowledge with sincere concern. But these are not the faults of the Constitution; for if they were, they could without difficulty be removed. And this displays the advantages arising from our political system in a new and striking light. For does it not possess a principle of amendment, and a capacity of melioration? Without requiring any other aid, can it not supply a remedy for every disease, which it is in the power of any human system to alleviate or to cure? The three great branches of which it consists, the King, the Lords, and the Commons, can of themselves revise what is obsolete, correct what is wrong, extend what is partial, and supply what is deficient in the laws. They can remove the obstructions which

which impede the progress of the political machine ; they can give new strength to its various parts, and new velocity to its motion. And the Acts of Parliament which are passed every session, adapted to the particular circumstances and necessities of the times, are evident proofs of this energetic and beneficial power.

Have we not, therefore, I may confidently ask, abundant reason to glory in the name, and the privileges of Britons ? Has not Providence shewed its peculiar kindness in placing us in this favoured island, and sheltering us under the protection of this most excellent system ? Let us cast our eyes around the globe, survey the mighty empires of the world, and contemplate the forms of government, by which they are distinguished ; and then let us ask, if they can supply us with a superior, or an equal share of political good. From the arbitrary sway of a Russian Czar, or a Turkish Sultan, an Englishman turns with aversion : and with what eyes can he survey the inhabitants of other countries, with whom he has a closer relation from similarity of manners, or vicinity of situation ? Can he look with desire upon the government of France, or the federal union of the American states ? While the former presents a scene of military despotism, and the latter exhibits the clashing interests of a discordant system, settled upon no solid basis, and liable to be torn asunder by internal divisions ; they can excite no emotions but those which increase his attachment to his own country—a country,

which has from age to age been favourable to the progress of that *true Liberty*, which in ancient times shewed, and only shewed, herself for a short period to the nations of the south of Europe. Short was her influence in polished Athens, short in martial Rome. Invisible to the world for ages, during the baleful prevalence of general tyranny, superstition, and barbarity, she at last appeared upon the shores of Britain; and finding the character and the genius of the people favourable to her great designs, here she fixed her abode, and developed her matchless plan. Here she seats a King upon the throne, whose happiness is centered in that of his subjects. She establishes the members of the Houses of Parliament, loyal, enlightened, and magnanimous. The expression of their united will is equal law, justice, toleration, security, order, and happiness. The monarch, the houses of parliament, and the people, both those who give, and those to whom this happiness is imparted, deserve it the more, as it is their ardent wish and uniform endeavour to communicate the same blessings to others, which they enjoy themselves. In whatever regions of the globe our commerce flourishes, are also felt the happy effects of our polity. From the bleak mountains of Scotland, to the sunny shores of Malabar, is diffused its benign influence; and no place attests the power of Britain, which does not equally witness the mildness of her government, and the excellence of her laws.

And if more considerations can be wanted to en-
dear

dear our country and its political institutions to us, they may arise from the recollection of the great and extraordinary events, which have taken place since the French revolution. Upon the Continent of Europe, ever since the beginning of the French revolution, we have seen the *Genius of Innovation* plying his destructive work, overturning some governments by open war, and undermining others by secret plots. Whilst our constitution, as "rocks resist the billows and the sky," has remained firm and uninjured. The storms which have assailed it, have served to prove its unalterable stability, as well as its inestimable value.

The Youth of the British Empire will best show their conviction of these important truths by their persevering obedience to the laws, and their judicious use of the blessings conferred by their native country. But to defend this venerable edifice of liberty from the machinations of domestic, and the assaults of foreign enemies, is a charge which devolves more immediately upon the nobility, and upon those who are deputed to represent their countrymen in parliament. The conscientious and careful exercise of this most honourable trust is a duty which they owe to their ancestors, to themselves, and to their descendants; and what labour can be too unremitting, what vigilance too active, what public spirit too exalted and ardent, to preserve a CONSTITUTION un sullied and unimpaired, which is the brightest ornament, the most glorious privilege,

privilege, and the most valuable inheritance ever enjoyed by mankind.

Hail sacred Polity, by Freedom rear'd!
 Hail sacred Freedom, when by law restrain'd!
 Without you what were men? a grov'ling herd,
 In darkness, wretchedness, and want enchain'd.
 Sublim'd by you, the Greek and Roman reign'd
 In arts unrivall'd: O to latest days,
 In *Albion* may your influence unprofan'd
 To godlike worth the gen'rous bosom raise,
 And prompt the sage's lore, and fire the poet's lays.

† Beattie's Minstrel.

END OF THE HISTORICAL CLASS,

CLASS THE FOURTH.

PHILOSOPHY.

CHAPTER I.

Logic, or the right Use of Reason.

IT is a very great error for any one to suppose, that Logic consists only in those formal debates and verbal disputations, in which the schoolmen and their followers consumed so much time in the dark ages, previous to the revival of classical learning. It is equally erroneous to imagine, that it is merely intended to teach the method of disputing by rules, and to instruct a young man to converse, not from a love of truth, but a desire of victory. As there is nothing more disingenuous than such a conduct as this, nothing more unbecoming a rational being, than to oppose sophistry to good sense, and evasion to sound argument, the logician disclaims this *abuse* of the principles of his art, and vindicates its rights by displaying its true and proper office. It is in reality capable of affording the most important assistance to the understanding in its inquiries after truth ; it is eminently useful in the common affairs of life, and renders the greatest service to science, learning, virtue, and religion.

Logic is *the art of making a proper use of the faculties of the mind in the discovery of truth by reason, and the communication of truth by language.* Logic traces the progress of all our information, from our first notions of things to those numerous conclusions which result from comparing them together. It distinguishes the different kinds of our ideas, discovers the causes of our intellectual mistakes, and shows us how we may correct them. It teaches us those rules which we follow, although imperceptibly, whenever we think in a manner conformable to truth.

By truth is meant the agreement of our ideas with the real state of things. “It is the offspring of unbroken meditations, and of thoughts often revised and corrected.” The love of truth is the purest principle of our nature, and prompts us to the most noble exercise of the understanding. It frees us from the mists of prejudice, the fluctuations of doubt, and the perplexities of error. When nothing influences, nothing agitates, nothing dazzles us in comparison with this love, we become gradually more eager for strong and clear evidence, and we leave no method untried, which can conduct us to right conclusions.

In the definition of logic, when we speak of the faculties of the mind, we include under those terms, the memory, the fancy, and the judgment.

Wollaston.

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The word *reason*, likewise, when used in contradistinction to *instinct*, denotes them all. Reason, used in this sense, is the pre-eminent quality by which mankind are distinguished from other animals : but still we are far from finding that all men possess it in the same degree. There is, indeed, as great an inequality in this respect, in different persons, as there is in their strength and agility of body. Nor ought this disproportion to be wholly ascribed to the original constitution of their minds ; it may be owing to habit, education, and government ; for if we take a survey of the nations of the world, we shall find that some men, as the savages of Africa and America, are immersed in ignorance and barbarism ; others, as many of the inhabitants of Europe, are enlightened by learning and science ; and what is still more extraordinary, the people of the same country have been, in various ages, marked by these very opposite characters ; take, for example, the ancient and modern inhabitants of Italy, Greece, Arabia, and Egypt. It is, therefore, by due cultivation and persevering diligence only, that we can increase the native vigour of our minds, and carry reason to a high degree of improvement. Where this method is followed, men extend their knowledge in every direction ; where it is neglected, they remain ignorant of their own powers ; and those faculties by which Providence has enabled them to examine its wonderful works, to investigate the causes of things, and to arrive at the most important conclusions as

to their welfare and happiness, remain useless and uncultivated^u.

Logic is divided into four parts. I. *Simple Apprehension*. II. *Judgment*. III. *Reasoning*. IV. *Method*.

Simple apprehension, or perception, is the first operation of the mind. It is the power of acquiring simple ideas, such as of a horse, a tree, a body, a soul, high, low, rich, poor, &c. The impressions made upon the mind by these objects and qualities, are called ideas. The sources of knowledge by which the mind is supplied with all its materials for thinking are two, which are sensation and reflection.

Sensation is the source of our original ideas, and includes all the notices conveyed into the mind by impulses made upon the organs of the senses. Such are the ideas of white, black, hard, soft, bitter, and sweet, and all those which are called sensible qualities. We derive all such ideas from external objects. The other source of ideas arises from the attention of the mind to its own internal operations;

^u Almost the whole of this chapter is compiled from Locke's Essay on the Human Understanding, Watts's Logic, and Doddsley's Preceptor. I have endeavoured to reduce the subject to its simplest principles; and those who wish to view it complete, in all its technical forms, and particular branches, are referred to the concise treatise of Aldrich, and the more perspicuous work of Wallis.

such

such as thinking, doubting, hoping, fearing, &c. These ideas we receive into our understandings as distinctly as we receive ideas from bodies, which affect the senses. This source of knowledge is called *Reflection*.

A proper consideration of these two sources of our thoughts will give us a clear and distinct view of the nature of the mind, and the first steps it takes in the path of knowledge. From these sources all our discoveries derive their origin; for the mind thus stored with its original notices of things, has a power of combining and modifying them, by which means it is enabled to multiply its objects, and finds itself possessed of an inexhaustible stock of materials for thinking. In the various comparisons of these ideas, we exert ourselves in the acts of judging and reasoning, enlarge our mental prospects, and can extend them in every direction. Thus are we enabled to form a notion of the whole progress of the soul, from the first dawnings of thought to the utmost limits of human knowledge; from the first perceptions of a child to the most refined and complicated reasonings of a Newton.

The ideas, with which the mind is thus furnished, fall naturally under two heads. First, those original impressions which are conveyed by sensation and reflection, and which exist uniformly and without any shadow of variety, and are called *simple ideas*, such are the ideas of *colour, sound, heat, &c.* And, secondly, those notions which result from the various

rious combinations of simple ideas, whether they are supposed to co-exist in any particular subject, or are united together by the mind when it enlarges its conceptions. These are called *complex ideas*, such as a *triangle*, a *square*, &c. and are of two kinds; first, such as are derived from external objects, and represent those combinations of thought, which have a real existence in nature; of this kind are all our ideas of substances. Secondly, the conceptions formed by the mind itself, arbitrarily uniting and putting together its ideas. This makes by far the largest class, and includes all those ideas, which may be properly termed our own. They are called *abstract*, such as *whiteness*, *beauty*, *melody*, &c. and are produced in various ways; for either the mind combines several simple ideas together, in order to form them into one conception, in which the number and quality of the ideas united are principally considered, and thus we acquire all our compound notions; or it fixes upon any of our ideas, whether simple or compound; or upon the ideas of substances, and omitting the circumstances of time, place, real existence, or whatever renders it particular, considers the appearance alone, and makes that a representation of all that are of the same kind; or, lastly, it compares things with one another, examines their mutual connexions, and thereby furnishes itself with a new stock of notions, known by the name of *Relations*, which are either proportional, as *equal*, *more*, *less*, &c. or natural, as *father*,

father, mother, &c. or civil, as *King and people, general and army, &c.* This division of our ideas, as it seems to be the most natural, and truly to represent the manner in which they are introduced into the mind, will be found to include them in all their varieties.

We know that our thoughts, although so numerous, are all contained within our own breasts, and are invifible. But as the supreme Being formed mankind for a state of fociety, he has provided us with organs proper for framing articulate founds, and has given us also a capacity of using those founds as figns of all the thoughts we wifh to communicate. From hence are derived words and languages. For any found being once determined upon to ftand as the fign of an idea, custom by degrees eftablifhes fuch a connexion between them, that the appearance of the idea in the mind always brings to our remembrance the name, by which it is expreffed : and in like manner the hearing of the name never fails to excite the idea, which it is intended to denote.

“ The ends of language are firft to make known one man’s thoughts to another ; fecondly, to do it with eafe and quicknefs ; and thirdly, thereby to convey the knowledge of things. When language fails in any of thefe requifites, it is abufed, or deficient.

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“ He who in conversation uses the words of any language without distinct ideas in his mind to which he applies them, only utters sounds without signification, and is in reality no more advanced in knowledge than he would be in learning, who had in his library the catalogues of books, without possessing the books themselves. He who has complex ideas without particular names for them, is embarrassed in his conversation for want of proper terms to communicate his complex ideas, which he is therefore forced to make known by a detail of the simple ones which compose them: and thus is frequently compelled to use twenty words to express what another more fluent and ready man signifies by one. He who annexes not constantly the same word to the same idea, but uses the same word sometimes in one and sometimes in another signification, ought to pass in conversation for as fair and candid a man as he does in the market, who sells several things by the same name^w. ”

In order to show our own knowledge of a subject, to remove ignorance or prevent mistakes in the minds of those with whom we converse, it is necessary to be able to explain our meaning with precision and accuracy of language. Logic, which teaches the nature and rules of definition, will enable us to do this. Definition puts an end to that ambiguity which is frequently apt to bewilder the understanding, and to produce disputes.

^w Locke, b. 3. c. 10.

A definition is a sentence *which explains the meaning of a complex idea by expressing in proper words the simple ideas of which it is composed*. Its rules are that it should be precisely adequate to the term defined; that the words employed in the definition should be clearer and better known than the term defined, and that it should be comprehended in terms which are proper, that is, solely applicable to the term defined. If these rules be observed, the definition may always be put in the place of the term defined, which is the true test of its correctness.

The first point necessary for a definition, is to discover the general nature in which a thing more immediately agrees with other things that most resemble it. This general nature is called the *genus proximum*. Then we are to discover the principal attribute, quality, or property, which constitutes its essence, and in which it differs from those which most resemble it. This is called *the differentia*, or specific difference. We are then to join these together, and thus complete the definition. The following are examples of definitions which are intended to distinguish subjects in some respects similar, according to the preceding rules.

Examples of Definitions.

A *Square* is a four-sided figure, which has all its sides equal, and all its angles right angles.

A *Paral-*

A *Parallelogram* is a four-sided figure, whose opposite sides are equal, and all its angles right angles.

Geology is the science which teaches the structure and formation of the earth.

Geography is the science which describes the globe, as consisting of land and water, and their various inhabitants and productions.

Astronomy is the science which teaches the magnitudes and motions, distances, periods, and order of the heavenly bodies.

Astrology, is the art of foretelling events by the knowledge of the stars.

Hydraulics, a science which teaches the method of conveying water through pipes.

Hydrostatics, a science which teaches the method of weighing bodies in fluids.

If these definitions be not conformable to the rules laid down, but are applicable to any other subjects, they are incorrect.

If we are unable to communicate our complex ideas to each other by means of definitions or descriptions, more or less exact, it would in many cases be impossible to make them known. This will

will appear the more evident in those ideas which are solely the offspring of the mind. For as they have no real objects in nature, according to which they are framed ; if we could not convey them to others by description, they must be confined to the limits of a single mind. All the abstract ideas which spring from the fancy of a poet, and which he describes as real persons existing and engaged in action, could not extend their influence beyond his own breast, or give pleasure to any one but himself, if he were destitute of this faculty of displaying them by words. Take for example the beautiful descriptions of Anger, Despair, and Hope, in Collins's Ode to the Passions.

Next Anger rush'd, his eyes on fire,
In lightnings own'd his secret stings,
In one rude clash he struck the lyre,
And swept with hurried hands the strings.

With woeful measures wan Despair,
Low fullen sounds his grief beguil'd,
A solemn, strange, and mingled air,
'Twas sad by fits, by starts 'twas wild.

But thou, O Hope, with eyes so fair,
What was thy delighted measure ?
Still it whisper'd promis'd pleasure,
And bade the lovely scenes at distance hail !
Still would her touch the strain prolong,
And from the rocks, the woods, the vale,
She call'd on echo still through all the song ;
And where her sweetest theme she chose,
A soft responsive voice was heard at every close,
And Hope enchanted smil'd, and wav'd her golden
hair.

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In our remarks upon language in general, we have adverted to the use of definitions; and in this place we have enlarged upon the subject by reason of its great importance in the acquirement of accurate knowledge. To simple ideas we shall find definition inapplicable, because as several terms of a definition signify several ideas, they cannot, when taken altogether, represent one idea which has no composition at all: but as they are intended to make known the meaning of words standing for all complex ideas, if we were always careful to form those ideas, and to copy our definitions from them with exactness, as a skilful painter does a good likeness; much of the obscurity and confusion of language, as it is used both in writing and conversation, might be prevented.

II. JUDGMENT.

The mind being furnished with ideas, the next step necessary in the progress of knowledge is to compare them together, in order to judge of their agreement or disagreement. In this connected view of our ideas, if the relation be such as to be immediately discoverable by the bare inspection of the mind, the judgments thence obtained are called *intuitive*, from a word that denotes to look at, or into: for in this case a mere attention to the ideas compared is sufficient to inform us how far they are connected or disjoined. Thus, "that the whole is greater than any of its parts" is an intuitive

tuitive judgment, nothing more being required to convince us of its truth, than an attention to the ideas of whole and part. Intuition therefore is no more than an immediate perception of the agreement or disagreement of any two ideas. This is the first of the three foundations of our knowledge, upon which depends that species of reasoning, which is called demonstration. For whatever is deduced from our intuitive perceptions by a clear and connected series of proofs is said to be demonstrated, and produces absolute certainty. Hence the knowledge obtained in this manner is what we properly term SCIENCE, because in every step of the argument it carries its own evidence with it, and leaves no room for doubt. Demonstration is confined to mathematical studies, and they are indebted to it for their peculiar clearness and certainty.

The second ground of human judgment, from which we infer the existence of the objects which surround us, and fall under the immediate notice of our senses, is EXPERIENCE. When we behold the sun, or direct our eyes to a building, we not only have ideas of those objects, but ascribe to them a real existence independent of the mind. It is likewise by the information of the senses, that we judge of the qualities of bodies; as when we assert that snow is white, fire is hot, or steel hard. As intuition is the foundation of all scientific, so is experience the foundation of all natural knowledge. For the latter being wholly conversant with objects

of sense, or with those bodies which constitute the natural world, and we can only discover their properties by a series of observations, it is evident, that, in order to improve this branch of knowledge, we must have recourse to the method of trial and experiment.

The third ground of judgment is TESTIMONY. There are many facts, that will not admit an appeal to the senses. All human actions, when considered as already past, are of this description. As from the other two grounds are deduced scientific and natural knowledge, so from this we derive *historical*, by which is meant not only a knowledge of the civil transactions of states and kingdoms, but of all cases where the evidence of witnesses is the ground of our belief.

The act of assembling our ideas together, and joining or disuniting them according to the result of our perceptions, is called judgment; but when these judgments are expressed by words, they are called propositions. A *proposition* therefore is a sentence denoting some judgment, whereby two or more ideas are affirmed to agree or disagree. The idea of which we affirm or deny any thing, and of course the term expressing that idea, is called the *subject* of the proposition. The idea affirmed or denied, as also the term expressing it, is called the *predicate*; and that word which in a proposition connects these two ideas is called the *copula*; and if a negative particle be annexed, we thereby un-

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derstand

derstand that the ideas are disjoined. The substantive verb is commonly employed as the copula, as in this proposition; "God is omnipotent;" where the verb substantive represents the copula, and signifies the agreement of the ideas of God and omnipotence. But if it be our intention to separate two ideas, then, in addition to the verb substantive, we must also apply some particle of negation, to express this repugnance. The proposition, "man is not perfect" may serve as an example of this kind; where the notion of perfection being removed from the idea of man, the negative particle *not* is inserted after the copula, to signify the disagreement between the subject and the predicate.

Propositions are *affirmative* or *negative*, *universal* or *particular*, *absolute* or *conditional*, *simple* or *compound*, and are generally divisible into *self-evident* or *demonstrable*.

When the mind admits an agreement between two ideas, we call the admission an *affirmative judgment*; as, on the contrary, a *negative judgment* is the admission of disagreement between the ideas compared: and as any two ideas compared together must necessarily either agree or disagree, it is evident that all our judgments are included in these two divisions. Hence likewise the propositions expressing these judgments are all either affirmative, or negative. An affirmative proposition connects the predicate with the subject, as "a stone is heavy;"

a negative proposition separates them, as "God is not the author of evil." Affirmation therefore is the same as joining two ideas together, and this is done by means of the copula. Negation, on the contrary, denotes a repugnance between the ideas compared; in which case, a negative particle must be employed, to show that the connexion included in the copula does not take place.

Our ideas, according to what has been already observed, are all single as they enter the mind, and represent individual objects. But as by abstraction we can render them *universal*, so as to comprehend a whole class of things, and sometimes several classes at once, the terms expressing these ideas must be in like manner universal. Thus when we say "men are mortal," we consider mortality not as confined to one, or any number of particular men, but as what may be affirmed without exception of the whole species. By this means the proposition becomes as general as the idea which is its subject; and indeed derives its universality entirely from that idea being more or less so, according as it may be extended to a smaller or greater number of individuals.

A particular proposition has some general term for its subject, but with a mark of limitation added, to denote that the predicate agrees only with some of the individuals comprehended under a species, or with one or more of the species belonging to a genus,

genus, and not with the whole universal idea. Thus "some stones are heavier than iron." In this proposition, the subject "some stones," implies only a certain number of individuals comprehended under a single species.

We may observe therefore, that all propositions are either affirmative or negative; nor is it less evident, that in both cases they may be universal or particular. Hence arises the division of them into *universal affirmative*, and *universal negative*, *particular affirmative*, and *particular negative*.

Propositions are either *absolute* or *conditional*. The absolute are those wherein we affirm some property inseparable from the idea of the subject, and which therefore belongs to it in all possible cases; as "God is infinitely wise,"—"Virtue tends to the ultimate happiness of man." But when the predicate is not necessarily connected with the idea of the subject unless upon some consideration distinct from that idea, then the proposition is called conditional. The reason of the name is taken from the supposition annexed, and may be expressed as such; thus—"If a stone be exposed to the rays of the sun, it will contract some degree of heat."

A due attention to this division of propositions is very necessary in the pursuit of accurate knowledge. If we be careful never to affirm things absolutely, but when the ideas are inseparably united; and if in our other judgments we distinctly mark

the conditions, which determine the predicate to belong to the subject, we shall be less liable to mistake in applying general truths to the particular concerns of human life.

Propositions when only two ideas are compared together, are in general called *simple*, because, having but one subject and one predicate, they are the effect of a single judgment, which admits of no subdivision. But if several ideas present themselves to our thoughts at once, so that we are led to affirm the same thing of different objects, or different things of the same object, the propositions expressing these judgments are called *compound*; because they may be resolved into as many others, as there are subjects or predicates in the whole complex determination of the mind. Thus, "God is infinitely wise and infinitely powerful:" here there are two predicates, "infinite wisdom" and "infinite power," both affirmed of the same subject: and accordingly the proposition may be resolved into two others, which distinctly affirm these predicates.

When any proposition is presented to the mind, if the terms in which it is expressed be understood upon comparing the ideas together, the agreement or disagreement asserted is either immediately perceived, or found to be too remote from the present reach of the understanding. In the first case the proposition is said to be *self-evident*, and requires no proof whatever: because a bare attention to the ideas themselves produces full conviction and certainty.

tainty. But if the connexion or repugnance be not so readily perceived, we must have recourse to reasoning; and if by a series of proofs we can ascertain the truth proposed, so that self-evidence shall accompany every step of the argument, we are then able to prove our assertion, and the proposition is said to be *demonstrable*. When we affirm, for instance, "that it is impossible for the same thing to be and not to be," whoever understands the terms used, perceives at the first glance the truth of what is asserted, nor can he bring himself to believe the contrary. But if we say, "this world had a beginning," the assertion is indeed equally true, but shines not forth with the same degree of evidence. We find great difficulty in conceiving how the world could be created out of nothing, and are not brought to a full assent of the assertion, until by reasoning we arrive at a clear view of the absurdity involved in the contrary supposition. Hence this proposition is of the kind we call demonstrable, as its truth is not immediately perceived, but yet may be made evident, by means of others more known and obvious, from whence it follows as a necessary consequence.

III. REASONING.

It frequently happens, in comparing our ideas together, that their agreement or disagreement cannot be discerned at first sight, especially if they are of such a nature, as not to admit of an exact

application to each other. It therefore becomes necessary to discover some third idea, which will admit of such an application as the present case requires; wherein if we succeed, the relation we are in search of may be traced with ease. This manner of determining the relation between any two ideas by the intervention of a third, with which they may be compared, is what we call *Reasoning*, and is indeed the chief instrument, by which we extend our discoveries, and enlarge our knowledge. The great art consists in finding out such intermediate ideas, as, when compared with the others in the question, will furnish evident truths; because it is only by such means we can arrive at the knowledge of what is concealed and remote.

From the limited nature of the human mind arises the necessity of reasoning. When we cannot judge of the truth or falsehood of a proposition, by the mere consideration of its subject and predicate, we are obliged to compare each of them with some third idea; that by seeing how far they agree or disagree with it, we may be able to judge how far they agree or disagree with each other: as for example, if there be two lines, A and B, and we are ignorant whether they are equal or not, we must take a third line, C, and apply it to each of them: if it agree with them both, then we infer that A and B are equal; but if it agree with one and not with the other, then we conclude A and B are unequal; if it agree with neither of them, there
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can be no comparison. So if the question be whether "God must be worshipped," we seek a third idea; suppose the idea of a Creator, and say *our Creator must be worshipped; God is our Creator, therefore God must be worshipped.* The comparison of this third idea with the two distinct parts of the question requires two propositions, which are called the *Premises*; the third proposition drawn from them is the *Conclusion*, in which the question itself is answered, and the subject and predicate are joined either in the negative or the affirmative.

The foundation of all affirmative conclusions is laid in this general truth, that so far as two ideas agree with any third idea, they agree among themselves. The character of Creator agrees with God, and worship agrees with a Creator, therefore worship agrees with God. The foundation of all negative conclusions is this, that where one of the two proposed ideas agrees with the third idea, and the other disagrees with it, they must disagree so far with one another; as if, for example—No sinners are happy; and if angels are happy then angels are not sinners. Thus appears the strict notion of a syllogism. *It is a sentence consisting of three propositions so disposed, that the last is necessarily inferred from those which precede it.*

In the constitution of a syllogism, two things are to be considered: its matter and its form. The matter consists of three propositions, and these consists of three ideas, or terms, variously joined. These

These three terms are named the *major*, the *minor*, and the *middle*. The predicate of the conclusion is called the major term, because it is generally of a more extensive signification than the minor term or subject. The major and minor terms are called the *extremes*. The middle term is the third idea placed in two of the propositions in such a manner as to shew the connexion between the major and minor terms in the conclusion; for which reason this middle term is sometimes called the *argument*.

The act of reasoning, or inferring one thing from another, is generally expressed by the word *therefore*, when the argument is formed according to the rules of art; though in common conversation or writing, such words as *for*, *because*, point out the act of reasoning, as well as *then* and *therefore*. And wherever these are used, a perfect syllogism is employed, though the three propositions may not be drawn out according to the regular form. These observations are chiefly applicable to simple or categorical syllogisms, although every syllogism contains something analogous to them.

In the common treatises of Logic, the various kinds of syllogisms, the modes and figures under which they are ranged, and the process by which those which are framed in an imperfect, may be reduced to a perfect figure, are laid down at length.

Of all the parts of logic, that which relates to the structure of syllogisms least deserves the attention of

of a student. Syllogistic reasoning is a display of truth, not a discovery of it. It only shews that the conclusion is contained in the premises. Every syllogism is no more than a particular application of this general principle,—that what is affirmed or denied of a whole genus, may be affirmed or denied of every species or individual contained in it. This is the whole of the boasted doctrine *de omni & nullo*, and is the very reverse of the discovery of truth; for in order to make that discovery, it seems evident to common sense, that we must advance from particulars to generals, and conduct our inquiries by the method of *induction*, which is a general inference drawn from several particular propositions. This will be explained in the following chapter.

That Aristotle did not esteem his theory of syllogisms of any practical use, is evident from his own conduct. In what part of his works, where proof is required, does he throw his arguments into this form? In his Rhetoric he recommends the *Enthymem* as the best instrument of persuasion, and in that treatise, as well as in his discourses on Ethics and Poetry, he endeavours to make every topic clear and intelligible, not by mode and figure, but by definitions.

If the forms of syllogism were necessary for the discovery of truth, what did the world do, before the days of Aristotle, without them? Destitute of this aid, Moses delivered to the children of Israel
a divine

a divine law, and Socrates taught clear and sound morality to the Athenians. In the apology of Socrates, written by Plato, the preceptor of Aristotle, there is not a single syllogism, and yet what treatise of the Stagyrice is more clear, or conclusive. Since the days of Aristotle, we have never heard of syllogism being adopted in the transactions of the important or the trifling affairs of life, in popular assemblies, or the cabinets of princes. It might have been serviceable when human reason was first beginning to detect the artifices of sophistry, but in the present advanced state of knowledge it is rather venerable for its antiquity than commendable for its use*. A soldier might as well arm himself with a helmet, a coat of mail, a spear and a shield, and march forth so equipped to meet his enemies in battle, as a disputant assail his opponent with mode and figure. For systems better adapted to the acquirement of knowledge in the present state of society, we must have recourse to the works of Bacon and Locke.

The kinds of argument to be considered as ranking under the head of reasoning, are the *Epichirema*, *Dilemma*, and *Sorites*. The *Epichirema* is an argument, which contains the proof of the major and the minor, or both, before it draws the con-

* For a full and clear exposition of the system of the Aristotelic Logic, and some acute observations on its defects, see Dr. Reid's "brief account," at the end of Kaims's Sketches of the History of Man, vol. ii, p. 168, &c.

clusion.

clusion. This is frequently used in writing, in public speeches, and in common conversation, in order that each part of the discourse may be confirmed, and put out of doubt, as it proceeds towards the conclusion, which was chiefly designed. Thus the oration of Cicero, for Milo, may be reduced to this figure. "It is lawful for a person to kill those who lie in wait to kill him, as is allowed by the law of nature, and the practice of mankind. But Clodius laid in wait for Milo with that intention, as appears from his guard of soldiers and his travelling armed; therefore it was lawful for Milo to kill Clodius." The *Dilemma* divides the whole argument into all its parts or members by a disjunctive proposition, and then refers something concerning each part, which is finally inferred concerning the whole. Thus Cicero argues to prove, that all pain ought to be borne with patience. "All pain is either violent or slight; if slight, it may easily be endured; if violent, it will certainly be short; therefore all pain ought to be borne with patience." But for this figure to be correct, two things are required, 1. the full enumeration of all the particulars of a subject; 2. that it press the opponent only, and not be liable to be retorted upon the person who uses it. In the *Sorites*, several middle terms are used to connect one another successively in several propositions, till the last proposition connects its predicate with the first subject. Such is the jocular argument of Themistocles to prove that his little son governed the world. "My son governs his mother, his mother governs me; I govern the
the

the Athenians, the Athenians all Greece; Greece governs Europe, and Europe the world; therefore my son governs the world."

In an Enthymem, one of the premises is expressed, while the other is reserved in the mind. As for example, "there is no true religion without good morals; therefore a knave cannot be truly religious." Or thus, "it is our duty to love our neighbours as ourselves; therefore there are but few who perform their duty." This forms the most common kind of argument, both in conversation and in writing.

IV. METHOD.

The fourth operation of the mind relates to the arrangement of our thoughts, when we endeavour to unite them in such a manner, that their mutual connexion and dependence may be clearly seen. This is method. It requires a proper distribution of all the parts of a subject, and that every thing of the same kind should be placed in its proper situation. The great principle of order was first displayed when the Almighty, from the rude materials of Chaos, called the world into existence, and regularity was diffused throughout all parts of nature; and it is conspicuous in all the best productions of man in art, science, and literature. Method is not less an advantage than an ornament to whatever subject it is applied.

Thus

Thus useful arms in magazines we place,
All rang'd in order, and dispos'd with grace;
But less to please the eye than arm the hand,
Still fit for use, and ready at command y.

In the disposition of our thoughts, either for our own use alone, or when we intend to communicate them to others, there are two modes of proceeding, which are equally in our power to choofe.

When a whole subject is divided into its several parts, and we proceed regularly from generals to particulars, the method pursued is called the *Analytic*. When, on the contrary, these parts are united together according to their mutual connexion and affinity, so that the truths first in order contribute to the establishment of those which follow, this makes what is called *synthetic method*. Adopting this process, we proceed by collecting the scattered parts of knowledge, and combining them into one system, in such a manner that the understanding is enabled to follow truth, without error or confusion, through all her different stages.

The two kinds of method admit of easy illustrations. In learning Grammar, for instance, we first acquire the knowledge of letters; we combine them to make syllables; of syllables are composed words, and of words sentences and discourses.

y Pope's Essay on Criticism.

This

This is synthetic method, and is called the method of *instruction*. We may know superficially what plants are ; but it is by the information which the study of botany gives that we become instructed in the component parts of any one, and distinguish its calix, stamina, corolla, pistillum, species and genus. We may likewise have a general notion of an animal, but it is by the study of anatomy we gain a particular knowledge of its cartilages, bones, veins, nerves, and all other parts. This is analytic method, and is called the method of *invention*.

This short treatise may be sufficient to prove that Logic, beginning with the sources and first principles of thought, ascends regularly from one act of the understanding to another, and connects our ideas in such a manner, that every stage of their progress is clear and satisfactory ;—that reasoning is the ability of deducing unknown truths from those already known ; and that method is necessary for marshalling our ideas, and giving clearness and regularity to them.

After having acquired a proper knowledge of the most useful distinctions marked out by Logic, and thus made ourselves acquainted with the rules prescribed for the exercise and improvement of the understanding, we ought to direct our attention to those authors, who have given the best examples of accurate reasoning ; that we may make a pleasing and easy application of the preceding principles.

We

We shall find them fully illustrated in the works of Bacon, Grotius, Locke, Clarke, and Paley. These authors will not fail to recompense our researches, by giving us a clear and comprehensive insight into the most interesting topics. They will point out not only the proper employment of our reason, but its limits and boundaries. They will instruct us in its use and application to the sublime doctrines of Revelation—"they will convince us that reason is not injured or disturbed, but assisted and improved by new discoveries of truth, coming from the eternal Fountain of all knowledge^z."

^z Locke, book iv. c. 18.

PHILOSOPHY

CHAPTER II.

The Mathematics.

OBJECTIONS against the study of the Mathematics have been conveyed in the form of ludicrous narrative by Swift, and armed with the force of ingenious argument by Warburton, and other writers. It seems, however, that the censures of these authors are levelled not so much against the study itself as against the extreme length to which it is sometimes carried, and the unremitting application, with which it is sometimes pursued: so that they might with equal propriety apply their observations to the immoderate pursuit of any other kind of knowledge. That these studies deserve a conspicuous place among the general topics of a liberal education, there can be no doubt, when their value is fairly weighed, and their utility is properly estimated: and that they ought to be limited within certain bounds is equally reasonable, in order that the other branches of knowledge may not be neglected in the general cultivation of the mind.

It is proposed in the present and following chapter to consider,

I. The utility of mathematical studies.

II. The principal branches of science.

III. Some account will be given of those eminent men, whose discoveries and researches form memorable eras in the history of science.

I. The Utility of Mathematical Studies.

These studies are calculated to produce effects highly beneficial to the mind. They make us fix our attention steadily upon the objects placed before us, and are therefore very properly recommended as the best remedy to cure an unsteady and volatile disposition. They teach us a method of close reasoning, and coincide both in principles and rules with logic: they form indeed the best and clearest exemplification of it. They give a manly vigour to our understanding, and free us from doubt and uncertainty on the one hand, and credulity and rash presumption on the other. They teach exactness and perspicuity in definition, connexion and conclusiveness in argument, and carefulness in observation; and from no exercises can the scholar go better prepared and disciplined to the pursuit of the higher branches of knowledge. The benefits to be derived from them are thus stated by Mr. Locke: "I have mentioned Mathematics as a way to settle in the mind a habit of reasoning closely, and in train; not that I think it necessary that all men should be deep mathematicians: but

that having got the way of reasoning, which that study necessarily brings the mind to, they might be able to transfer it to other parts of knowledge, as they shall have occasion^a.”

The greatest perspicuity is found to prevail in every part of these researches. By reasonings represented to the eye by lines and figures, the clearest truths are conveyed to the understanding. In one respect these studies claim the pre-eminence over all others; they reach the highest degree of evidence, that is, demonstration.

II. *The principal Branches of Science.*

The name of *Mathematics* was originally intended, either to denote by way of eminence the high rank, which the sciences hold in the order of intellectual discipline, on account of their peculiar clearness and utility; or it was designed to convey an idea of their extent, as containing every kind of useful knowledge. According to their proper definition, they constitute *the science of quantity, either as subject to measure or number*. Their various branches are adapted to the common uses of life, and to the deepest and most abstract speculations. They are *pure* and *mixed*. The for-

^a Conduct of the Understanding, vol. i. p. 339, “In geometria partem fatentur esse utilem teneris ætatibus: agitari namque animos, atque acui ingenia, et celeritatem percipiendi venire inde concedunt.” Quint. lib. i. c. 10.

mer consider quantity abstractedly, without any regard to *matter*, or particular bodies; the latter treat of quantity as subsisting in bodies, and consequently they are intermixed with the consideration of physics, or experimental philosophy.

Pure Mathematics are Arithmetic, Algebra, Geometry, and Trigonometry: *mixed* consist chiefly of Mechanics, Pneumatics, Hydrostatics, Optics, Astronomy, and Navigation.

ARITHMETIC.

This art teaches the powers and properties of numbers, and the method of calculation with exactness and expedition. It is likewise defined the science of discrete quantity, to distinguish it from Geometry, which is by the logicians termed the science of continuous quantity. The four fundamental rules of Arithmetic are Addition, Subtraction, Multiplication, and Division. Considering their universal application, it is a pleasing circumstance, that these rules, which are the most useful, are the easiest of all. For purposes of a commercial and scientific kind, many other rules have been contrived, which are modifications of the former, such as Practice, Vulgar and Decimal Fractions, the Extraction of the Square and Cube Roots, the Rules of Proportion, &c. &c. This art from its obvious utility commenced in the earliest state of society, and received gradual improvements as commerce was advanced, and the sciences were cultivated.

cultivated. The present mode of computation, and the characters we use to denote numbers, were introduced into Europe, in the tenth century, by the Saracens, when they had possession of Spain. The method of reckoning by *tens* was common to them with the Egyptians, Greeks, and Romans, and the practice most probably took its rise from the obvious mode of counting by the fingers. The state of calculation seems to afford some criterion of the progress of civilization, for it has been remarked by travellers, that certain tribes of American savages, who can scarcely count twenty, are sunk in the lowest ignorance and barbarism.

This art is cultivated with sufficient diligence by those, whose occupations render it their interest to be expert in the application of its rules. To the merchant and the banker it is indispensably necessary, and to all ranks in society from the peasant to the peer it is highly useful. From the first entrance of a young man into society, he will find the advantage of keeping some account of what he receives and pays; as he may reap the double advantage of securing himself from the impositions of the fraudulent, and from the folly of spending more than he can afford. This practice may give a check to his expenditure, suggest to him the propriety of not exceeding his income, and put it in his power to be generous as well as just. Thus economy, produced by regularity of accounts, may be the parent of beneficence. Such a habit of
regularity

regularity is far from being inconsistent with the liberal notions of a gentleman, although not reconcileable to the heedless extravagance of the spendthrift. The observation of every day proves its utility in every situation of life, and without the constant comparison of receipts with payments, communities as well as individuals must eventually be involved in embarrassment. It can never be neglected except by those, who are determined to proceed blindly and inconsiderately to certain distress and ruin.

Arithmetic is the measure of almost every thing valuable. It is not only the indispensable guardian of private accounts, but the guide to political knowledge, as to the population, revenues, balance of trade, coinage, and military power of nations. Dr. Johnson well observed, "that nothing amuses more harmlessly than computation, and nothing is more often applicable to real business or speculative inquiries. A thousand stories, which the ignorant hear and believe, die away when the computist takes them within his grasp. Numerical inquiries give entertainment in solitude by the practice, and reputation in public by the effect^b."

ALGEBRA

Is the method of calculating all kinds of quantities by means of general signs, that is, generally

^b Seward's Biog. vol. ii. p. 348.

speaking, by letters of the alphabet, which, for the simplicity and distinctness of their sounds and characters, are much more commodious for this purpose, than any other marks^c. In the infancy of science, numbers and things were expressed by their names at full length; but afterwards these were abridged, and the initials of words were used instead of them. Afterwards the letters of the alphabet were employed as the signs of all kinds of quantity, and other marks were gradually introduced to express all kinds of combinations, so as to entitle this art to the distinguishing name of universal Arithmetic, and the Arithmetic of signs.

Algebra, properly speaking, consists of two parts: first, the method of calculating magnitudes or quantities, as represented by letters or other characters; and secondly, the manner of applying these calculations in the solution of problems.

The first business of Algebra, as applied to the resolution of problems, is to translate the problem out of the common into the algebraic language, by expressing all the conditions and quantities, both known and unknown, by their proper characters arranged in an equation, or several equations if necessary; and treating the unknown quantity, whether it be a number or a line, or any thing else, in the same way as if it were a known

^c Hutton's Dictionary, Saunderson's Algebra, 2 vols. 4to. and Maclaurin.

one: this forms the composition. Then the resolution, or analytic part, is the disentangling the unknown quantity from the several others with which it is connected, so as to retain it alone on one side of the equation, while all the other, or known quantities, are collected on the other side, and so giving the value of the unknown one. And as this disentangling of the quantity sought is performed by the converse of the operations, by which it is connected with the others, taking them always backwards in the contrary order, it hence becomes a species of the analytic art, and is called the modern analysis, to distinguish it from the antient analysis, which chiefly related to Geometry.

The characters used in Algebra are,

+	} which signifies	more, as $3+4$, is 3 added to 4.
-		less, as $4-3$, is 3 taken from 4.
$\times$		multiplied by, as 3×4 , is 3 multiplied by 4.
$\div$		divided by, as $3 \div 4$, is 3 divided by 4.
=		equal to, as $a=4$, is a equal to 4.

An *Equation* is a sentence expressed in algebraic characters, asserting the equality of two quantities. The proposition that 8 and 4 is equal to 12, is an equation, and is written thus $8+4=12$.

An equation in any of whose terms the first power of one unknown quantity only is contained, is called a *simple equation*, or an equation of one dimension, as $x+3=10$.

If

If the square of an unknown quantity be involved, that is, when the quantity by being multiplied into itself, is raised to its square, it is called a *Quadratic*, or equation of two dimensions, as $x^2 + 6x = 40$.

The quadratic is called likewise an equation of the second order, because the unknown quantity is raised to its square, or second power.

Cubic and other equations of the higher orders, are where the unknown quantities are raised to the third, fourth, &c. power.

It is usual to substitute letters not only for such quantities as are unknown, and consequently such as cannot be represented in any other manner, but also for known quantities, in order to keep them distinct from each other, and to form general conclusions. The known quantities are represented by the first letters of the alphabet, *a, b, c, &c.* and the unknown ones by the last, *x, y, z.* As for instance: suppose I was asked, what two numbers are those, whose sum is 48, and whose difference is 14. Here, if I put *x*, or some other letter, for one of the unknown quantities, and use those which are known, viz. 48 and 14, as I find them in the problem, I shall only come to this particular conclusion, that the greater number is 31, and the less 17, which numbers will answer both the conditions of the problem. But if, instead of the known numbers 48 and 14, I substitute the general quantities

tities a and b respectively, and propose the problem thus:—*What two numbers are those whose sum is a , and whose difference is b , I shall then come to this general conclusion, viz. that half the sum of a and b , will be the greater number, and half their difference will be the less:* which general theorem will suit not only the particular case above-mentioned, but all other cases of this problem, that can possibly be proposed.

Thus letters are used in Algebra, not so much to signify particular quantities as such, as to signify the relation they have to one another in any problem or computation. From which it may be observed, that letters represent quantities in Algebra in the same manner as they do persons in common life, when two or more persons are distinctly to be considered, with regard to any compact, law-suit, or any other business.

Algebra is found very useful in the resolution of mathematical problems. It affords a satisfactory mode of proving their truth, and the connexion between them has produced many extensive and interesting theories. In Geometry, the representations are more natural; in Algebra, they are more arbitrary. In the former, they are like the first attempts towards drawing the likenesses of objects: in the latter, they correspond more with descriptions in writing.

Algebra proceeds by rules and operations similar to common Arithmetic, and is founded upon the same principles; it has however great advantages over common Arithmetic in its abstract mode of resolving equations, and by the concise method in which its problems are worked it spares the labour, and prevents the perplexity of long and intricate calculations.

At the beginning of the last century, an elaborate work on the Elements of Algebra was published from the papers of Dr. Saunderson. Although at the early age of twelve months he had been deprived of his sight, and his eyes, yet, when he afterwards became Lucasian Professor of Mathematics at Cambridge, he delivered discourses on many branches of philosophy with great ability, particularly on Optics, the nature of light and colours, the effects of glasses, and the phenomena of the rainbow. Ardour in the pursuit of science never appeared greater than in the case of Dr. Saunderson, wherein obstacles apparently insurmountable obstructed its cultivation: yet they were overcome by acuteness of mind assisted by persevering diligence.

GEOMETRY.

Common Geometry is the science which is employed in the consideration of right lines, plane surfaces, and solids. Higher Geometry is employed in the consideration of curve lines, conic sections,

sections, and the bodies formed by them. This part of the science has been chiefly cultivated by the moderns by the assistance of algebra and fluxions.

The invention of Geometry is attributed to the Egyptians. When the waters of the Nile, in consequence of its annual inundations, had effaced the bounds of the lands, covering the surface of the ground uniformly with mud, the people were obliged every year to distinguish their lands by the consideration of their figure and quantity. This practice accounts for the literal signification of the word Geometry, which is the *measure of land*. A further contemplation of the fields, thus marked out, might lead accurate observers to the discovery of some of the abstract properties of mathematical figures, and thus advance the progress of this science.

The principles of Geometry are best known by an attentive study of the Elements of Euclid. This most renowned of Mathematicians was born at Alexandria, in Egypt, where he taught his favourite science with great reputation in the reign of Ptolemy Lagos, about 280 years before Christ. He reduced to order the fundamental principles of pure mathematics, which had been delivered down by Thales, Pythagoras, and Eudoxus, and added many others of his own, on which account, to him is attributed the honour of reducing Arithmetic and Geometry to the form of sciences.

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The train of reasoning pursued by Euclid is the clearest that can be imagined. He adopts no *postulates*, that is, he takes nothing for granted but what cannot fairly be denied. He defines the meaning of every geometrical term which he intends to use, and he always uses it precisely in the same sense. He states *axioms*, or propositions self-evident, such as that "the whole is greater than any of its parts," as the solid principles upon which he reasons. The propositions which he considers are divided into theorems and problems. The former are propositions, in which some truth is to be demonstrated; the latter are propositions, in which some figure is to be constructed, and its truth proved. *Corollaries* are inferences which follow from propositions already proved. Mathematical reasoning is carried on by a series of enthymems, which lead to demonstration: this reasoning is of two kinds, *direct* or *indirect*: in the former, the conclusion necessarily follows from the strength of the premises: in the latter, what is asserted in the premises is taken for granted, and the contradictory supposition is shown to be absurd. The same method of conducting an argument is pursued in all mathematical sciences.

The application of Geometry to the use and ornament of mankind is very extensive. Furnished with this assistance, geographers can ascertain the dimensions of the terraqueous globe, the extent of seas, and the various divisions of the earth. Hence architects derive their just measures and proportions

tions for the construction of all kinds of buildings. By its assistance likewise engineers delineate the plans of towns, and surveyors take the dimensions of land. Hence fortification derives its strength, security, and systematic regularity, in the erection of forts, batteries, and all other military works; and generals are enabled to draw the lines of regular encampments, and arrange their armies in the most advantageous order of battle. From geometry is acquired an exact knowledge of perspective, and accuracy is given to maps and charts. Hence musicians ascertain the variation of notes, and the science of mechanics can express its powers by various lines and figures.

TRIGONOMETRY.

Trigonometry is the art of measuring the sides and angles of triangles, either plane or spherical; from whence it is accordingly called either Plane, or Spherical Trigonometry.

Every triangle has six parts, three sides, and three angles: and it is necessary that three of these parts be given to find the other three. In spherical trigonometry, the three parts that are given may be of any kind, either all sides or all angles, or part may be the one, and part the other. But in plane trigonometry, it is necessary that one of the three parts at least be a side; since from three angles can only be found the proportions of the sides, but not the real quantities of them.

Trigonometry

Trigonometry, or the resolution of triangles, is founded on the mutual proportions which subsist between the sides and angles of triangles; which proportions are known by finding the relations between the radius of a circle, and certain other lines drawn in and about the circle, called *chords*, *sines*, *tangents*, and *secants*. The antient mathematicians performed their trigonometry by means of the chords. The sines, and the common theorems relating to them, were introduced into trigonometry by the Moors or Arabians by whom this art was brought into Europe, with several other branches of science. The Europeans have added, since the 15th century, the tangents and secants with the theorems relating to them.

When the circle is divided into four equal parts, each part or quadrant subtends a right angle at the centre. Hence it is evident, that the angles at the centre of a circle have the same ratio to four right angles, as the arcs on which they stand to the whole circumference. For this reason, both the circumference of a circle and four right angles are usually divided into the same number of equal parts, of which as many parts are contained in the angle at the centre, as in the arc subtending it. The circumference of every circle is supposed to be divided into 360 degrees, each degree into 60 minutes, and each minute into 60 seconds.

The trigonometrical canon, or table of numbers, wherein the radius of a circle, which is expressed by unity or 1, is generally supposed to be divided
into

into 10,000,000 equal parts; exhibits what number of those parts is contained in the sine, tangent, and secant of every arc, or of every angle of that circle. Logarithms of these sines, tangents, and secants are also arranged in tables, which facilitate calculations in an eminent degree, by addition and subtraction, instead of multiplication and division by the natural sines, &c. This art is of the greatest use in its application to astronomy, navigation, surveying, dialling, and geography. The astronomer more particularly is enabled by its assistance to ascertain the magnitude of the earth, of the planets, and fixed stars, together with their distances, motions, and eclipses. By reason of its extensive application to subjects of mixed mathematics, it has been studied from the earliest cultivation of the sciences.

See the subject very clearly treated in Hutton's Mathematical Dictionary, from which part of this article is extracted. See likewise in the same work the articles *Logarithm* and *Longimetry*; by the latter is meant the art of measuring lengths, or distances, by the application of geometry to trigonometry.

Some of the principles and uses of mixed mathematics, which constitute the branches of experimental philosophy, are next to be considered.

I. MECHANICS.

However small the strength of man, considered in itself, may appear, his ingenuity has afforded him the means of supplying its defects: by the aid of the mechanical powers, he is enabled to conquer the obstacles, which are opposed to him; to subdue, or to arm himself with the elements; and to make air, water, and fire, subservient to his purposes. Skill in mechanics constitutes the great distinction between savage and civilised life, whether we consider their application to minute or to great objects, as aiding the ingenious artist in the construction of a clock or a watch, as assisting in driving down the piles for the foundations of bridges, in boring cannon of the largest calibre, in raising the ponderous anchor from the bottom of the ocean, or in working the steam-engine with the greatest ease.

Before the mechanical powers are explained, it is necessary to understand the nature of motions and forces, so far at least as will give clear ideas of the various terms by which they are expressed.

Body is a mass or quantity of matter. *Matter* is a substance the object of our senses, in which the peculiar properties are always united of extension, figure, solidity, mobility, divisibility, gravity, and inactivity^d. *Force* is a power exerted on a body

^d Emerson's Mechanics.

to move it. If it act instantaneously, it is called *percussion*, or *impulse*; if constantly, it is an *accelerative* force. *Motion* is a continual and successive change of place. If the body move equally, it is called *equable*, or *uniform* motion. If it increase or decrease, it is called *accelerated* or *retarded* motion. When it is compared with some body at rest, it is called *absolute* motion; but when compared with others in motion, it is called *relative* motion. *Velocity* is a property of motion, by which a body passes over a certain space in a certain time; and it is greater or less, as it passes over a greater or a less space in a certain time, as suppose a second of time. *Direction* of motion is the way the body tends, or the line it moves in. The *momentum* of a body, or the quantity of its motion, is the motion a body has, considered both in regard to its velocity and quantity of matter. *Vis inertiae* is the innate property of matter, by which it resists any change, striving to preserve its present state of rest or motion. *Gravity* is the force with which a body endeavours to fall downwards. It is called *absolute gravity* in empty space, and *relative gravity* when immersed in a fluid. *Specific gravity* is the greater or less weight of bodies of the same magnitude, or the proportion between their weights. *Centre of gravity* is a certain point of a body, upon which the body, when suspended, will rest in any position. *Equilibrium* is the balance of two or more forces, so as to remain at rest. *Machine* or engine is any instrument to move bodies, and is made of levers, wheels,

pullies, &c. *Friction* is the resistance which a machine suffers, by the parts rubbing against one another.

This science treats of forces, motion, and moving powers with their effects in machines. It is distinguished by Sir Isaac Newton into practical and rational; the former treats of the mechanical powers and their various combinations; the latter contains the whole theory and doctrine of forces, with the motions and effects produced by them.

The mechanical powers are certain simple machines, which are used for raising greater weights, or overcoming greater resistances, than could be effected by the natural strength of man. They are six in number, viz. the *lever*, the *wheel and axle*, the *pulley*, the *inclined plane*, the *wedge*, and the *screw*. They may perhaps be reduced to two; for the pulley and wheel are only assemblages of levers, and the wedge and the screw are inclined planes^c.

A *lever*, the most simple of all the mechanical powers, is an engine chiefly used to raise large weights to small heights; such as a hand-spike when of wood, and a crow when of iron. From the different ways of using the lever, it is called a lever of the first, second, or third kind, viz. of the first kind, when the weight is on one side of the

^c Hutton's Dictionary.

prop, and the power on the other ; of the second kind, when the weight is between the prop and the power ; and of the third kind, when the power is between the prop and the weight.

Many instruments in common use are levers of these kinds, thus pincers, sheers, and snuffers are compounded of two levers of the first kind. Cutting knives used by druggists are levers of the second kind, and so are doors, oars, and bellows. A ladder reared by a man against a wall is a lever of the third kind, and so are all the bones and muscles of animals.

The *wheel and axle* is an engine consisting of a wheel fixed upon the end of an axle, so that they both turn round together at the same time. The power being applied at the circumference of the wheel, the weight to be raised is fastened to a rope that coils round the axle. The capstan used on ship-board, for the purpose of weighing anchors, is a cylinder of wood with holes in it, into which are put bars or levers to turn it round ; these are like the spokes of a wheel without the rim. Sometimes the axis is turned by a winch fastened to it, which in this respect serves for a wheel, and is more powerful in proportion to the largeness of the circle it describes, compared with the diameter of the axle.

A *pulley* is a small wheel moveable round an axis, called its centre pin, with a drawing rope passing

passing over it. The chief use of the single pulley is to change the direction of the power from upwards to downwards, and to convey bodies to a great height or distance, without a person moving from his place.

The *inclined plane* is made by planks, bars, or beams laid aslope; by which large and heavy bodies may be more easily raised or lowered, by sliding them up or down the plane; and the increase of power is in the proportion of the length the plane to its height. In drawing a weight upon an inclined plane, the power acts to the greatest advantage, when its direction is parallel to the plane.

The *wedge*, which resembles two inclined planes, is very useful to drive in below very heavy weights, to raise them only a small height, and to cleave and split blocks of wood and stone. The power exerted by it is in proportion of the slant side to half the thickness of the back. So that if the back of a wedge be two inches thick, and the side twenty inches long, any weight pressing on the back will balance twenty times as much acting on the side. But the great use of a wedge lies in its being urged not by pressure, but usually by percussion, as by the blow of a hammer or mallet; by which means a wedge may be driven in below, and so be made to lift almost any weight, as the largest ship, by a man striking the back of a wedge with a mallet.

The

The *screw* is a kind of perpetual inclined plane, the power of which is still farther assisted by the addition of a handle or lever, where the power acts; so that the gain in power is in the proportion of the circumference described, or passed through by the power, to the distance between thread and thread in the screw. The uses to which the screw is applied are various, as the pressing of bodies close together, such as the presses for napkins, for book-binders, packers, hot-pressers, &c.

For the application of these mechanical powers to various experiments, and to compound machines, to the regulation of motion by fly-wheels, the construction of mills of various kinds, clock-work, and wheel-carriages, see Imison's Elements, vol. i. p. 27, &c.

PNEUMATICS.

This word is commonly used to express the mechanical properties of elastic fluids, such as their weight, density, compressibility, and elasticity. It is here used as the science which treats of the nature and properties of the air alone.

Air is a thin, fluid, transparent, elastic, compressible, and dilatable body, which surrounds this globe, and covers it to a considerable height. Together with the clouds and vapours which float in it, it is called the *atmosphere*. As it is possessed of weight, in common with all other fluids, it must

press upon bodies in proportion to the depth, at which they are immersed in it; and it also presses in every direction, in common with all other fluids. But it differs from all other fluids in the following particulars: 1. It can be compressed into a much less space than what it naturally possesses; 2. it cannot be congealed or fixed, as other fluids may; 3. it is of a different density in every part upwards from the earth's surface, decreasing in weight the higher it rises; 4. it is of an elastic, or expansive nature, and the force of its spring is equal to its weight.

The most considerable mechanical properties and effects of air are its fluidity, weight, and elasticity.

1. *Its Fluidity.* This property is evident from the great ease with which bodies pass through it, as in the propagation and easy conveyance of sounds, odours, &c. for these effects prove, that it is a body, whose parts give way to any force, and in yielding are easily moved among themselves, which is the definition of a fluid. The air is found to exert an equal pressure in all directions, an effect which could not be produced but from its extreme fluidity. It has never been found, that the air can be deprived of this property, whether it be kept for many years together confined in glass vessels, or be exposed to the greatest natural or artificial cold, or condensed by the most powerful pressure; for

for in none of these circumstances has it ever been reduced to a solid state.

2. *Its Weight.* This is a property which belongs to it as a body; for gravity or weight is a property found in all bodies. We have many direct proofs of the weight of the air from sense and experiment; thus the hand laid close upon the end of a vessel, out of which the air is drawn at the other end, soon feels the weight of the air, which presses upon it: thus likewise thin glass vessels, exhausted of their air, are easily crushed to pieces by the weight of the external air. Again, if a tube close at one end be filled with quicksilver, and the open end be immersed in a basin of the same fluid, and so held upright, the quicksilver in the tube will be kept raised up in it to the height of about thirty inches above the surface of that in the basin, being supported and balanced by the pressure of the external air upon that surface: and that this is the cause of the suspension of the quicksilver in the tube is made evident by placing the whole apparatus under the receiver of an air-pump; for then the fluid will descend in the tube, in proportion as the receiver is exhausted of its air; and then, on gradually letting in the air again, the quicksilver re-ascends to its former height in the tube; and this is called, from its inventor, the Torricellian experiment. Upon this principle barometers are formed^f.

^f Imison, vol. i. p. 150.

3. *Elasticity.*

3. *Elasticity.* This is the property by which air yields to the pressure of any other bodies, by contracting itself, and dilates and expands itself again on the removal or diminution of the pressure. Thus, for example, a blown bladder being squeezed in the hand, we find a sensible resistance from the inclosed air; and upon taking off the pressure, the compressed parts immediately recover their former convexity. On this property of elasticity depend the structure and uses of the air-pump. Every particle of air makes a continual effort to dilate itself, and so it acts forcibly against all the neighbouring particles, which also exert the like force in return; but if their resistance happen to cease, or be weakened, the particle immediately expands to an immense extent. Hence thin glass bubbles or bladders, filled with air, and placed under the receiver of an air-pump, upon pumping out the air, burst asunder by the force of the air, which they contain. So likewise a close flaccid bladder, containing only a small quantity of air, being put under the receiver, swells as the receiver is exhausted, and at length appears quite full. And the same thing happens by carrying the flaccid bladder to the top of a very high mountain. The elasticity of the air exerts its full force in all directions when it is at liberty, and consequently it assumes a spherical figure in the interstices of the fluids, in which it is lodged. For this reason, large glass globes are always blown up of this shape, by blowing air through an air-tube into a piece of melted glass at the end of the pipe.

Experiments

Experiments fully prove the certainty of these principles respecting the nature and properties of the air. The most useful instruments to be employed for the purpose are the air-pump, the air-gun, and the various kinds of barometers, the thermometer, and the hydrometer. For a clear account of their structure and uses, see Hutton's Mathematical Dictionary, and Imison's Elements, from which this account is taken.

HYDROSTATICS

Is a science which treats of the nature, gravity, pressure, and equilibrium of fluids, and of weighing solids in them. It relates to the fluids at rest: the science which considers the laws of fluids in motion, is called Hydraulics. A fluid is defined to be a body, whose parts yield to any impression, and in yielding are easily moved amongst each other. Fluids are of two kinds: non-elastic and incompressible fluids, such as water, oil, mercury, &c. and elastic and compressible fluids, as air of different sorts. Fluids have this remarkable property, that they press not only in common with solids perpendicularly, but also upwards, sideways, and equally in all directions. From this property it is, that if you bore a hole in the side of a vessel filled with water, the fluid will spout out.

By weighing bodies in water, their specific gravities are found. By specific gravity is to be understood the relative weight, which equal bulks of
different

different bodies have to each other. A body is said to be specifically heavier than another, when under the same bulk it contains a greater weight. Thus if there be two equal spheres, each one foot in diameter, the one of lead, and the other of wood, since the leaden one is found to be heavier than the wooden one, it is said to be specifically heavier, and the wooden one specifically lighter. The method of ascertaining the specific gravity of bodies was found out by Archimedes^g.

To the science of Hydrostatics belongs the construction of that curious machine, called the diving-bell. It is an empty vessel in the form of a bell inverted, and made so heavy as to sink in water. Its ingenious inventor, Dr. Halley, was one of five persons who, inclosed in a diving-bell, were let down to the depth of nine or ten fathoms of water for above an hour and a half at a time, without experiencing any ill effects. He says he might have continued there as much longer as he pleased. By the glass above, so much light was transmitted when the sun shone and the sea was clear and even, that he could see perfectly well to read and write, and to take up any thing that was under the bell; and by the return of the air-barrels, he could send up orders, written with an iron pen on small pieces of lead, when he wanted to be removed from place to place. But in misty weather, or when the sea was

^g See a clear account of the fact, which led to the discovery, in Imison, vol. i. p. 219.

rough, it was nearly dark in the bell, and he was then obliged to burn a candle, which consumed about as much air as one person.

Hydraulics is the science which teaches us how to estimate the swiftness and force of fluids in motion. Upon the principles of this part of science, various engines used in the mechanic arts, many kinds of mills, pumps, and artificial fountains are constructed. The steam-engine claims a place under this head, particularly as it has been applied with so great success to various purposes in the abridgment of labour. It was invented by the Marquis of Worcester, who published "his Century of Inventions" in the reign of Charles II. Capt. Savary improved upon it, and obtained a patent for it. It was still farther improved by Newcomen; and Mr. Watt has since brought it to a great degree of perfection.

The power of steam engines can best be shewn by stating the actual performance of some of them, as ascertained by experiment. "An engine, having a cylinder of 31 inches in diameter, and making 17 double strokes per minute, performs the work of 40 horses working night and day, (for which three relays, or 120 horses must be kept), and burns 11,000 pounds of Staffordshire coals per day. A cylinder of 19 inches making 25 strokes of four feet each per minute, performs the work of 12 horses working constantly, and
burns

burns 3,700 pounds per day. A cylinder of 24 inches, making 22 strokes of five feet, burns 5,500 pounds of coals, and is equivalent to the work of 20 horses^b."

OPTICS.

This is a beautiful and interesting branch of science, for it relates to the properties of light, which is the most rapid, subtle, and divisible of all bodies; and to the structure of the eye, the most wonderful organ of the human frame.

Optics explain the manner in which vision is effected, assign the reasons of the several alterations which the rays of light undergo in the eye, and shew for what causes objects appear at different times greater or smaller, more distinct or confused, nearer or remote. In this extensive signification, the science is considered by Sir Isaac Newton in his work on this subject.

Optics are commonly divided into two parts: *Dioptrics*, derived from *δια*, *through*; and *ὀπταί*, *I see*; under which is included whatever relates to the appearance of bodies seen through transparent substances, as fish in water; and *Catoptrics*, from *κατοπτρον*, *a looking-glass*, which relates to seeing bodies by reflected light. To these may be added a third, which treats of the causes and varieties of colours, observable in all bodies.

^b Imison, vol. ii. p. 321.

The more the properties of light are investigated, the more astonishing they appear. A succession of the particles of light, following each other in a straight line, is called a ray of light; and this ray, in whatever manner its direction may be changed, whether by refraction, reflexion, or inflexion, always preserves a rectilinear course till it be again changed; neither is it possible to make it move in the arch of a circle, ellipsis, or other curve. A proof of this, we cannot see objects through a crooked tube.

Refraction is the deviation of a ray of light from its straight course, on passing obliquely out of one medium into another of a different density. This may be proved by an easy experiment. Put a piece of money into an empty basin, and walk back till you have just lost sight of the money, which will be hid by the edge of the basin. Then pour water into the basin, and you will see the piece of money distinctly, though you look at it from exactly the same spot as before.

The *Reflexion* of the rays of light from the surface of bodies, is the mean by which those bodies become visible. And the disposition of bodies to reflect this or that kind of rays most copiously is the cause of their being of different colours. When light strikes upon any surface, it is so reflected, that the angle of reflexion is equal to the angle of incidence. This is one of the fundamental laws of optics, and upon this the properties of mirrors depend.

Inflexion is a property, by reason of which, when rays of light come within a certain distance of any body, they will either be bent from it, or towards it, this property being a kind of imperfect reflexion, or refraction. It was discovered by Sir Isaac Newton. The particles which compose a ray of light are exceedingly small. For a proof of this, if a hole be made through a piece of paper with a needle, rays of light from every object on the further side of it are capable of passing through it at once without the least confusion; for any one of those objects may as clearly be seen through it, as if no rays passed through from any of the rest. That these particles proceed from every point of the surface of a visible body, and in all directions, is clear; because wherever a spectator is placed, with regard to the body, every point of that part of the surface which is turned towards him, is visible to him. That they proceed from a body in right lines, we are certain, because just so many and no more will be intercepted in their passage to any place, by an interposed object, as that object ought to intercept, supposing them to come in such lines.

The velocity with which they fly from the surface of the visible body is no less surprizing than their minuteness. Light has been calculated to move at the rate of 150,000 miles in a second. The method by which philosophers estimate its velocity is by their observations

servations on the eclipses of Jupiter's satellites, which eclipses appear to us about seven minutes sooner than they ought to do by calculation, when the earth is placed between the sun and him, that is, when we are nearest to him; and as much later when the sun is between him and us, at which time we are farthest from him;—from whence it is concluded, that they require about seven minutes to pass over a space equal to the distance between the sun and us, which is about eighty one millions of miles.

Light is not a simple unmixed body, but is compounded of different species, and each species is disposed both to suffer a different degree of refrangibility in passing out of one medium into another, and to excite in our mind the idea of a different colour from the rest. Bodies appear of that colour, which arises from the composition of the colours, which the several species they reflect are disposed to excite. To prove this, let a room be darkened, and the sun be permitted to shine into it through a small hole in the window shutter, and be made to fall upon a glass prism; then will the sun's rays, in passing through it, suffer different degrees of refraction, and by that means be divided into different rays, which, being received upon a sheet of white paper, will shew the following colours in regular order, viz. red, orange, yellow, green, blue, indigo, and violet; and if the whole image be divided into 360 equal parts, the red will occupy 45, the orange 27, the yellow 48, the
VOL. II. I green

green 60, the blue 60, the indigo 40, and the violet 80ⁱ.

As a ray of the sun may be separated into these seven primitive colours, so by their mixture in the due proportions, may *white* be produced. White therefore is the mixture of all the colours, as black is the absence or deprivation of colour: and this may be proved, for by fixing pieces of cloth of all the seven different colours on the rim of a wheel, and whirling it round with great velocity, it will appear to be white.

The most remarkable instance of the separation of the primary colours of light is that of the rainbow. It is formed in general by the reflection of the solar rays from the drops of falling rain. The artificial rainbow may be produced, even by candlelight, on the water which is ejected by a small fountain, or jet d'eau. These appearances are of the same nature and depend on the same cause, that is, the refrangibility of the rays of light.

In order to understand more fully the science of Optics, it is necessary to consider the structure and the formation of the human eye, and to observe how admirably it is adapted to the purposes of sight.

ⁱ "None of these are capable of farther decomposition. Marat indeed pretended that he had reduced them to three, but his experiments are now known to have been merely philosophical frauds."

Encyclop. Britannica, Supplement, p. 280.

The

The eye-lids, like two curtains, protect and cover the eyes during sleep; when we are awake, they diffuse by their motion, and by peculiar organs of secretion, a fluid over the eye, which cleans and polishes it, and renders it more adapted to transmit the rays of light. The eye itself is of a globular form, but more protuberant on the fore part than behind. The eye has three coats or membranes called the *sclerotica*, the *choroides*, and the *retina*. Of these the most curious is the retina. It is a fine and delicate membrane, and is spread like a net over the concave surface of the choroides. It serves to receive the images of objects produced by the refraction of the different humours of the eye, and painted, as it were, upon its surface. It is transparent, but appears black by reason of a black liquid spread underneath it. From the under part of the eye, but not from the centre part, proceeds the *optic nerve*, which is supposed to convey to the brain the sensations produced upon the retina.

The coats of the eye, which invest and support each other, after the manner of the concentric coats of an onion or other bulbous root, inclose three transparent bodies, called the *aqueous*, *chrystalline*, and *vitreous* humours. The aqueous humour is the most fluid, and is thin and clear like water; it is divided into two portions by the iris which swims in it. The iris consists of two kinds of muscular fibres. The former are extended from its extremity, like the radii of a circle, and point

towards the middle of the pupil as to a centre; the other fibres are circular, and surround the pupil, having the middle of it for their common centre. These are connected to the former, where they cross them, and therefore when these contract, the pupil is diminished; when they dilate, it is enlarged. This action takes place according to the distance or remoteness of objects, or the increase or decrease of light. The chrystalline humour is as transparent as the purest chrystal, but in consistence is like hard jelly. Its form is that of a double convex lens, but more convex on the interior, than on the inferior surface. It is contained in a very strong transparent membrane, called the *arachnoides*, and is suspended behind the aqueous humour by the ligamentum ciliare. The vitreous humour receives its name, like the others, from its appearance, which is like melted glass. It is not so hard as the chrystalline, nor so liquid as the vitreous humour. These humours are of firm texture and soft substance, and are best situated according to the most exact rules of optics, for collecting the rays of light to a point.

These principles, which relate to the properties of light and the structure of the eye, lead to many curious researches. For the manner how sight is effected, the power of burning glasses, the construction of microscopes, and telescopes of various kinds, whether solar, double, or acromatic, and their progressive improvements; and for a description of the multiplying glass, the camera obscura,

in which objects are represented as they are upon the retina of the eye, reference must be made to the best writers on the subject. See particularly Rowning's Philosophy, Martin's Mathematical Institutes, Hutton's Mathematical Dictionary, and Imison's Elements. From these works the before-mentioned account of Optics has been taken.

ASTRONOMY.

This science, which has been before defined, is of all others, both the most sublime, the most beautiful, and the most interesting — for there are no persons, of whatever age, to whom the heavenly bodies are not objects of curiosity. The certain principles upon which it rests, are proved by the calculations of eclipses; as the astronomer can determine not only that the luminaries of day and night will be darkened, but he can pronounce with certainty at what particular point of time, and to what particular extent such obscurations will happen, and exactly how long they will continue. Some parts of astronomy are so useful to mankind, as to make the cultivation of it highly necessary: accordingly we may find traces of it among all nations. By its assistance, Geographers are enabled to ascertain the true figure and size of the earth, and the situations and extent of countries; Chronologists can compute the measure of the year, and Navigators can determine the longitude of places, and direct their courses through the trackless and stormy ocean

with correctness and safety. This science opens to our view the solar system and the fixed stars.

The solar system, which the moderns have adopted, was taught by Pythagoras, revived by Copernicus, confirmed by Galileo, Kepler, and Descartes, and fully established by Sir Isaac Newton. The sun is placed in the centre of this system, from which it never moves; but, from observations made upon its spots, it is found to turn round its own axis from West to East in about twenty-five days. The planets, called primary, revolve round the sun at unequal distances. Their names are Mercury, Venus, the Earth, Jupiter, Saturn, and the Georgium Sidus, and they move in the order, in which they are here mentioned ^k.

To this system belong other spherical bodies which move around their respective primary planets, in the same manner as the primary planets move round the sun from west to east, except those of the Georgium Sidus, which appear to move in a contrary direction. These are called secondary planets, satellites, or moons. The most conspicuous is the Moon, which moves round the earth in something less than twenty-eight days: *four* revolve round Jupiter, *seven* round Saturn, and *six* round the Georgium Sidus.

^k The two planets *Ceres* and *Pallas* lately discovered by Piazzi and Olbers, two foreign astronomers, may be referred to the solar system, but their orbits have not yet been determined with precision.

A TABLE OF THE SOLAR SYSTEM¹.

	Mean diame- ters in English miles.	Mean distances from the sun.	Daily rotations round their axes.	Time of revolv- ing round the sun.
			D. H. M.	D. H. M.
The Sun	883,246		25 14 8	
Mercury	3,224	37	Unknown.	83 23 16
Venus	7,687	68	— 23 21	224 16 49
The Earth	7,911	95	1 — —	365 5 48
The Moon	2,180	95	29 17 44	
Mars	4,189	144	— 24 39	686 23 30 $\frac{1}{2}$
Jupiter	89,170	490	— 9 55	4332 14 27 $\frac{1}{2}$
Saturn	79,042	900	— 10 16	10759 1 51
Georgium Sidus	35,112	1800	Unknown.	30737 18 —

It is important to remark the distance of the primary planets from the sun, and of the secondary planets from their primaries, and the times of their revolutions; because we are hence led to see more clearly the excellence of the Copernican system, according to which the motions of all the planets are regulated by one general law, viz. the squares of the periodical times of the planets are to each other as the cubes of their mean distances from the sun; and the same law is established with respect to the secondaries in revolving round their primaries.

The planets are retained in their orbits by the united operation of the *centripetal* force, by which a body is attracted to the centre of gravity, and the *centrifugal* force, by which it endeavours to persevere in a straight line. These two powers, mu-

¹ Taken from Imison, and corrected by Dr. Maskelyne's, &c. View. Encyclop. Britannica, vol. iii. Article Astronomy.

tually balancing each other, like action and reaction, retain the planets in their orbits, and compel them to make their respective revolutions.

The mean distance of the moon from the earth is about thirty of the earth's diameters, or 240,000 miles. The surface of the moon is to that of the earth nearly as 1 to $13\frac{1}{3}$, and their respective quantities of matter nearly as 1 to 39. The sun is about a million of times bigger than the earth.

The planets, both primary and secondary, are opaque bodies, and receive all their light from the sun, and make their revolutions round it. From the appearance of the bounds of light and shadow upon their surface, they are concluded to be spherical, which is confirmed by many of them being found to turn periodically on their axes.

The planet Jupiter is surrounded by thin substances, called *Belts*, in which there appear so many changes, that they are generally thought to be clouds, for some of them have appeared broken, and then have become entirely invisible. Saturn is surrounded by a thin broad ring, which appears double through a good telescope. There is reason to believe that it turns round its axis, because when its edge only is visible to us, it appears somewhat thicker on one side of the planet than on the other; and the thickest edge has been seen on different sides at different times.

Each

Each of the primary planets moves round the sun in a curve line which forms an ellipsis. The sun is placed in one of the foci. The point of the line in which the planet approaches nearest to the sun, is called the *perihelion*. The point at which it is most remote, is called the *aphelion*. Its mean distance is equal to half the sum of its greatest and least distance from the focus in which the sun placed^m.

Comets are supposed to be solid opaque bodies of various magnitudes, with long transparent tails resembling a pale flame, and issuing from the part of the comet farthest from the sun. They move round the sun in very elliptic orbits, and cross the orbits of the planets in all directions. From the

^m An *ellipsis* is a transverse section of a cone formed by a plane cutting both sides of the cone, but not parallel to the base. If two pins be stuck into a table, and a thread be tied loosely round them, a pencil held within the thread, kept moderately tight, and moved round the pins, will describe an ellipsis, of which the points where the pins stick are the *foci*. The orbit in which a planet revolves round the sun being an ellipse, its *mean distance* is the line drawn from that focus of its orbit in which the sun is placed, to either end of the conjugate axis; and it is evident from the nature of the ellipse, that this line is equal to half the transverse axis. Its excentricity is equal to the distance from the centre of the orbit to either of the foci. The apsidal are the two points in the elliptical orbit of a planet, where it is at the greatest and least distance from the sun, or its *aphelion* and *perihelion*.

curved

curved direction of their paths, Newton concludes, that when they disappear, they go much beyond the orbit of Jupiter; and that, in their perihelion, they frequently descend within the orbits of Mars, and the inferior planets. He computed the heat of the comet which appeared in 1680, when nearest the sun, to be 2000 times hotter than red hot iron, and that it must retain its heat until it comes round again; even if its period should be more than 20,000 years, and it is computed to be only 575.

Such is the solar system; and the basis upon which it rests is, that the sun, and not the earth, is the centre of it, and that the earth is not fixed, but revolves round the sun like the other planets. That this system is true, and agreeable to the constitution of nature, is certain, from the observations which have been made by the greatest philosophers, aided by telescopes and all the assistance of mathematical and physical knowledge. When the heavens are beheld from the surface of the earth, or even from its centre, the motions of the planets appear to be very unequal, and not to observe any regular course; and therefore we may certainly conclude that our earth is not the centre of their motions. He, therefore, who would observe the real motions of the planets, must place himself in the centre of the sun, or not far distant from it, and then all the phenomena would be perfectly regular, and exactly such as they would be if the
earth

earth was the centre round which the sun and the planets revolvedⁿ.

The various appearances of the planets can only be accounted for by the motion of the earth. Astronomers make it perfectly clear, that the orbit of the earth is included within the orbits of Mars, Jupiter, and Saturn; and that, for that reason, they are seen on all sides of the heavens, and are as frequently in opposition to the sun as in conjunction with him. But if the earth stood still, they would always appear direct in their motions, never as if stationary, or going back. But they are seen to go just as often backward as forward, which affords an evident proof of the annual motion of the earth.

Another proof of the motion of the earth is drawn from physical causes. Sir Isaac Newton has proved that all the planets gravitate to the sun, that is, are attracted by it; and that when two bodies gravitate to each other, without directly approaching to each other in right lines, they must both turn round their common centre of gravity; the sun and the earth, therefore, both turn round their common centre of gravity. But the sun is a body so much greater than the earth, viz. a million times, that the common centre of gravity of the earth and sun must be within the body of the sun itself, and not far from its centre. The earth,

ⁿ Keill's Astronomy. p. 18. Lect. iii.

therefore,

therefore, turns round a point which is within the body of the sun, and therefore turns round the sun.

The earth has two motions, the one a daily motion of 24 hours round its axis, the other an annual motion of 365 days and nearly 6 hours round the sun. The former causes the changes of night and day, for when one side of the earth is turned to the sun, it is enlightened by his rays, and day is produced. When one side is turned from the sun, darkness succeeds, and night comes on. It is plain, therefore, by how much more simple means this change is effected, than those ancients imagined, who supposed that the earth was fixed, and that the sun, which is ascertained to be of an immense size in comparison, was moved round the earth every 24 hours.

Far beyond the utmost bounds of the solar system, are placed the *fixed* stars, but so remote that the best telescopes represent them only as points. They are called fixed, because they have never been observed to change their situation. The unassisted eye can discover no more than about 600 of these luminaries, but by the aid of telescopes more become visible, and the greater the magnifying power, the more can be seen; so that an infinite number may exist beyond the reach of all human discovery. They are divided into several classes or orders, on account of their apparent difference of size. Those which appear largest, are called stars
7 of

of the first magnitude; the next to them in lustre, stars of the *second* magnitude, and so on to the *sixth*, which are the smallest visible to the naked eye. The stars which cannot be seen without the assistance of telescopes, are called *telescopic* stars. The fixed stars are distinguished by different constellations, or collections of stars. The chief of these are the signs of the *Zodiac*, so called, because, by the ancients, they were supposed to resemble the animals from which they take their names, which are *Aries*, *Taurus*, *Gemini*, *Cancer*, *Leo*, *Virgo*, *Libra*, *Scorpio*, *Sagittarius*, *Capricornus*, *Aquarius*, and *Pisces*. In the constellation *Aries*, 66 stars were observed by Mr. Flamsteed, Astronomer Royal at Greenwich; and in the constellation *Taurus*, no less than 141. The *Zodiac* is supposed to go round the heavens: it is about 16 degrees broad, so that it takes in the orbits of all the planets, and the orbit of the moon. The other constellations are 57 in number; 29 on the north, and 28 on the south side of the *Zodiac*. There are, according to Professor Flamsteed, 3000 fixed stars; many of which cannot be discerned without a telescope; to each of which he has annexed its longitude, latitude, right ascension, and distance from the pole. Dr. Herschel has added a multitude to this number*.

These fixed stars are all supposed to be suns, as they shine with their own native light, and each

* See the article Astronomy in the Encyclopædia Brit. vol. iii. Part 1. p. 73.

is placed in the centre of a system in which planets revolve round them, as ours do round the sun. If, therefore, a spectator were placed as near to any of them as we are to the sun, that star would appear to him as large as the sun appears to us, and our sun would appear no larger than a fixed star. Every star, therefore, may be considered as the centre of a system consisting of planets regulated by laws, and revolving with rapid, continual, and regular motion, like the planets of our solar system. What a most magnificent and most stupendous prospect does this idea suggest, of the almighty power of God, extended through the unfathomable and boundless regions of space !

I will consider thy heavens, even the works of thy fingers, the moon and the stars which thou hast ordained. What is man that thou art mindful of him, and the son of man that thou visitest him ? O Lord, our governor, how excellent is thy name in all the world^P !

^P Psalm viii. The reader is referred to Ferguson's Astronomy for the most easy and familiar proofs of the truth of the Copernican system. Keill's Introduction is more scientific, and, considered as an elementary book, is as useful and satisfactory as any work upon the subject. For a system of Astronomy complete in all its branches, see the article *Astronomy* in the *Encyclopædia Britannica*.

CHAPTER III.

The Mathematics continued.

IT is much to the honour of science that its pursuits have a very favourable effect upon the moral habits of its votaries, as they are generally remarkable for correctness of conduct: their minds are refined and exalted by the abstract speculations in which they are engaged; and the close and constant application necessary for the success of the Mathematician and the Astronomer in their studies, excludes the tyranny of the passions, and produces an indifference or a contempt for those objects of avarice or ambition, which dazzle the eyes and captivate the hearts of the generality of mankind. These remarks, it is presumed, will be found strictly applicable to those illustrious philosophers about to be mentioned^a.

^a Felices animæ ! quibus hæc cognoscere primis,

Inque domos superas scandere, cura fuit,

Credibile est, illas pariter vitiisque locisque

Altius humanis exseruisse caput.

Non Venus, & vinum sublimia pectora fregit,

Officiūve fori, militiæve labor.

Nec levis ambitio, perfusaque gloria fuco,

Magnarumve fames sollicitavit opum.

Admovere oculis distantia sidera nostris,

Ætheraque ingenio supposuere suo.

Ovid. Fasti. Lib. i.

The

The sciences have been held in honour, and cultivated with diligence wherever polite learning has flourished. PYTHAGORAS born in the Island of Samos, 590 years before Christ, acquired during his travels into Egypt, Chaldea, Crete, and Greece, those great and valuable principles of morality, legislation, and science, which he afterwards taught in the great cities upon the coasts of Italy, when Tarquin the elder was king of Rome. All his works are lost, if the *golden verses* known by his name be not genuine; but the antient writers who have mentioned him, give us very exalted ideas of his wisdom, discoveries, and eminent services to the various people among whom he resided. In geometry he is said to have invented the following theorems:—1. Only three polygons, or regular plane figures, can fill up the space about a point, viz. the equilateral triangle, the square, and the hexagon; 2. the sum of the three angles of every triangle is equal to two right angles; 3. in any right angled triangle, the square of the side which is opposite to the right angle is equal to both the squares of the two other sides. For the discovery of this last theorem he is said to have sacrificed a hundred oxen. If the offering was much less, it was sufficient to shew the gratitude of the philosopher, and the importance he annexed to this discovery. But his greatest praise as a proficient in science, is founded upon his attention to astronomy. He maintained that according to the true constitution of nature, the sun is in the centre, and the planets revolve round him. He first called the world by the name of *Kosmos*;

Kosmos; a term expressive of the beauty and the order visible in the works of creation. He maintained that it was made according to musical proportion, and that the earth, and the other five planets, move round the sun in harmonious measures. He laid the foundation of many of those philosophical tenets, by the adoption of which the disciples of the Socratic, Platonic, and Aristotelic schools, afterwards gained great reputation^r.

From the school of Pythagoras, known by the name of the Italic Sect, Plato and Aristotle seem to have derived their fondness for the sciences. Plato allayed the warmth of his imagination by these pursuits, for which he had such high respect, that the following inscription was placed over the door of his academy:—"Let no one enter here who is unskilled in Geometry." He recommended arithmetic, geometry, and astronomy, as the best foundation for all other studies, and as more immediately useful to those who were intended for the public offices of the state. Aristotle illustrated the principles of his logic and ethics by arithmetical and geometrical proportions.

ARCHIMEDES, the greatest practical mathematician of antiquity, flourished about 250 years before Christ, and about 50 years later than

^r For a very beautiful detail of his various philosophical opinions, see Ovid Metamorph. Lib. xv.

Euclid. His remaining works are sufficient to prove the extent of his genius, as well as his scientific researches. The wonderful and destructive effects related of his burning glasses, when Syracuse, his native city, was besieged by Marcellus, the Roman general, are confirmed by experiments made in modern times. Buffon, the celebrated naturalist, at the distance of 140 feet, by means of 400 plane reflectors, melted lead and pewter, and set fire to wood placed much farther off. Archimedes is reported to have fired the Roman ships at a bow shot distance; that is, about 150 or 200 feet. He invented many curious machines, among which was the *Cochleon*, or spiral pump, to draw water from places where it is stagnant, and now in use under the name of *Archimedes's screw*.

At the time when polite literature was gaining ground in Rome, Julius Cæsar, with the assistance of Sosigenes, an eminent astronomer, reformed the Roman calendar. That active general, during his conquests in Egypt, Germany, and Gaul, found an agreeable relief from the tumults of war and the bustle of a camp, in observing the courses of the planets.*

* ——— Media inter prælia semper
Stellarum, æelique plagis, superisque vacavi;
Nec meus Eudoxi vincetur fastibus annus.

Lucan. Phars. lib. x. v. 185.

After

After the fall of the Roman empire, the sciences were neglected; and it was not till the dominion of the Califfs was established, that their admirers enjoyed that degree of encouragement necessary for their cultivation. Under the protection of those illustrious princes, the studies of philosophy flourished in the east. But the astronomical systems of Aristotle and Ptolemy, which, after the conquest of Spain by the Saracens, were introduced into many other countries of Europe, were so intricate and obscure, that, far from serving to account, in any rational manner, for the appearances of the heavenly bodies, they involved the face of nature in darkness, and seemed likely to conceal for ever, from the eyes of mankind, the knowledge of her real constitution and laws.

The account of those who, in more modern times, have pursued mathematical studies with assiduity, and united useful discoveries to scientific attainments, comprises the history of some of the greatest efforts of the human mind.

In various ages of the world some great man has appeared as the precursor of approaching improvement in knowledge. The morning star is the bright harbinger of the sun, which is soon afterwards to enlighten the world. Homer and Pythagoras, Alfred and Wickliffe, flourished in rude ages of society, and were as lights shining in a dark place. Such an extraordinary person was Roger Bacon, commonly called FRIAR BACON,

the great precursor of modern science. He was born near Ilchester, in Somersetshire, in 1214. He studied first at Oxford; and afterwards, according to the fashion of the times, at Paris; under the patronage of Robert Groothed, bishop of Lincoln. On his return to England, he assumed the habit of a monk, of the Franciscan order, and pursued his favourite studies in experimental philosophy with unremitting diligence. Such was his proficiency in mathematics, physics, and chemistry, that he was reputed a magician, and was supposed to deal with the devil: although he wrote a treatise professedly *de nullitate Magiæ*, to prove the weakness of all such pretences. If he did not know by experiment many of the discoveries in philosophy which have so much distinguished subsequent ages, he certainly was acquainted with their principles and effects. He appears to have known the method of making gun-powder, as he says, that thunder and lightning may be produced by art; for sulphur, nitre, and charcoal, when mixed together in due proportions, and closely confined and fired, make a loud report. He speaks of an inextinguishable fire prepared by art, which was probably a species of phosphorus. He had a notion of the rarefaction of the air, and the structure of the air pump. He wrote a treatise on perspective, and accurately described the uses of reading glasses, the camera obscura, and all kinds of glasses which magnify or diminish objects. That he made some advances towards the invention of the telescope appears from
a pas-

a passage in his works, in which he says, that he was able to construct glasses in such a manner, with respect to the objects presented to the eye, that the rays of light shall be reflected wherever we please; so that we may see an object under what angle we think proper, either near or remote, and be able to read the smallest letters at a great distance. To his other attainments he united great skill in astronomy; he discovered the error which afterwards occasioned the reformation of the calendar. The great energy and wide range of his intellectual powers were shewn by many works written upon philological, moral, and metaphysical subjects. As a proof that the age in which Friar Bacon lived was too dark and ignorant to profit by his knowledge, and follow his steps into the new regions of experimental philosophy, he was accused of necromancy. He was obliged to send his instruments and books to Rome, to satisfy the Pope as to the means by which he had accomplished such wonderful discoveries; and on the charge being renewed, when he was afterwards in France, he was imprisoned. He was liberated, however, at the intercession of some of his countrymen, and closed his splendid career of science at Oxford, aged 80, in the year 1294.

NICHOLAS COPERNICUS was born at Thorn, in Prussia, in 1473. After receiving a classical education he travelled to Rome, where he was chosen Professor of Mathematics, and read lectures with great applause. On his return to his own country,

he applied his mind to the correction of the reigning system of astronomy. He derived his information, as to the opinions which some antient philosophers held concerning the motion of the earth, from the academical questions of Cicero, and the works of Plutarch, as he acknowledged in the dedication of his works to Pope Paul III^t. He followed Pythagoras in maintaining, that the sun is the centre of the system, and that the earth moves both round the sun, and also round its own axis. He discerned much order and beauty in this system, and proved that all the perplexity, which belongs to the system of Ptolemy, would be completely removed by its establishment. He began to consider this subject, and to write upon it, when he was about thirty-five years of age. He carefully observed the phenomena of the heavenly bodies, examined the observations of the antients, and made new ones of his own. At length, after the most diligent investigation for more than twenty years, he brought the system to perfection, which has ennobled his name, and is now received by all men of science.

^t Quare hanc mihi operam sumpsi, ut omnium philosophorum quos habere possem, libros perlegerem, indagaturus ane ullus unquam opinatus esset alios esse motus sphaerarum mundi quam illi ponerent, qui in scholis mathemata profiterentur. Ac reperi quidem apud Ciceronem primum Nicetum sensisse terram moveri. Postea et apud Plutarchum inveni quosdam alios in ea fuisse opinione.—Inde igitur occasionem nactus, cœpi et ego de terræ mobilitate cogitare. Præf. Copernici de Revolutionibus Orb. Cœlest, Basil, 1536,

His

His system was at first regarded by the Church of Rome as a dangerous heresy, and his elaborate work on the subject was completed long before he could be prevailed upon to publish it. At length, yielding to the entreaties of his friends, it was committed to the press, and a fair copy was but just delivered to him when he died, aged seventy, on the 24th of May, 1543.

GALILEO GALILEI, born at Pisa, in Italy, in 1564, confirmed the system of Copernicus. When Professor of Mathematics at Padua, he heard that in Holland a glass had been invented, through which very distant objects could be seen as distinctly as if they were near the eye. This raised his curiosity, and induced him to consider the form of such a glass, and the manner of making it. With the promptitude of ingenuity, which supplied the want of a model, he fitted some large glasses to the pipes of an organ. Thus he constructed a telescope, which magnified more than thirty times, and all the subsequent advances made in astronomy were easy and natural consequences of this invention. He discovered four of the satellites of Jupiter, and proved the use which might be made of their eclipses for ascertaining the longitude. He called these satellites the Medicean stars, in honour of Cosmo the II^d. Grand Duke of Tuscany, who afterwards made him Professor of Mathematics at Pisa, in 1611. He confirmed the truth of the Copernican system, by showing from the appearances of the planet Venus, which resemble those of the moon,
K 4 that

that Venus actually revolves round the sun. He proved the rotation of the sun on his axis from his spots, and from thence the diurnal rotation of the earth became more credible. The satellites which attend Jupiter in his revolution round the sun, represented in Jupiter's smaller system, the system of the sun, and rendered it more easy to conceive, how the moon attends the earth in her annual revolution, as a satellite. By discovering hills and cavities in the moon, and spots in the sun, constantly varying, he showed that there was not so great a difference between the celestial bodies and the earth, as had been imagined.

From the time of Archimedes, nothing had been done in mechanical geometry till Galileo first extended the bounds of that science, and began to reduce the resistance of solid bodies to certain laws. In a clear and geometrical manner, he treated the doctrine of motion, which has been justly called the key of nature. He was the first of all philosophers to demonstrate, that the spaces described by heavy bodies, from the beginning of their descent, are as the squares of their times; and that a body projected in any direction, not perpendicular to the horizon, describes a parabola. He invented the simple pendulum, and made use of it in his astronomical experiments. He had thoughts of applying it to clocks; the credit of that application however was reserved for his son Vincenzo, who made the experiment at Venice, in 1649, and Huygens afterwards carried it to perfection. Galileo

ileo also discovered the weight of the air, endeavoured to compare it with that of water, and made several other curious researches into natural philosophy.

In consequence of publishing in 1632, at Florence, his Dialogues concerning the two great systems of the world, the Ptolomaic and Copernican, he was cited before the Inquisition, committed prisoner to the Ecclesiastical Court at Rome, and obliged to abjure his imputed errors in the most solemn manner. As an additional proof of the bigotry of his enemies, his works were publicly burnt. By continual application to his telescope, and his exposure to the nocturnal air, he became totally blind in 1639. But neither this great calamity, nor the persecution he had suffered, in the least degree conspired to damp his ardour for science, or depressed his exalted spirit. He supplied the defect of sight by constant meditation, and whilst engaged in collecting his philosophical observations, which he arranged by dictating his ideas, he died at Acetri, near Florence, in the 78th year of his age, in 1642.

While the unfortunate Galileo was thus engaged in confirming the Copernican system by actual observation, KEPLER was employing himself in Saxony to ascertain, and to improve it by his calculations. He was greatly assisted in his studies by Tycho Brahe, a Danish nobleman, who invited the indigent Saxon to live with him, and as a true friend

friend to science communicated to him all his own observations on the figures, which the planets describe in their courses. Thus assisted, Kepler was led to the following discoveries: I. That the six primary planets move round the sun, not in circles, but in ellipses, having the sun in one of the foci. II. That the planets describe round the sun equal areas in equal times. III. That the squares of the periodical times, in which the planets revolve round the sun, are as the cubes of their mean distances from him.

JOHN DOMINIC CASSINI, the father of a family eminent for science, was born of noble parents in Piedmont, in Italy, 1625. At a very early age some of his poems were published, but he forsook the pleasures of imagination for those of science, as soon as he met with books of astronomy. He observed with great attention the comet which appeared in 1652, and he concluded, that comets were not bodies accidentally generated in the atmosphere, as had been supposed, but were of the same nature, and probably were governed by the same laws as the planets. He discovered the revolution of the planet Mars upon his own axis. He was appointed the first superintendant of the Royal Observatory at Paris, and from that place he observed, that the diurnal rotation of Jupiter round his axis was performed in nine hours fifty-eight minutes, from the motion of a spot in one of his larger belts. In 1684, he made the curious discovery of four of the satellites of Saturn. Christian Huygens, a very
eminent

eminent astronomer of Holland, had before discovered one, as well as Saturn's ring. Cassini found, that the laws ascertained by Kepler, respecting the solar system, were applicable to the systems of Jupiter and Saturn.

The name of Bacon occurs a second time in the English History, connected with the progress, and conducive to the honour of science. SIR FRANCIS BACON, Baron of Verulam, and Viscount of St. Alban's, was born in London, in 1560. He was early distinguished in the Court of Queen Elizabeth, by his promising talents and ready wit^u. Dissatisfied with the Aristotelic philosophy, he made an early resolution to strike out some new method of investigating truth. In the midst of his occupations as Attorney General and Lord High Chancellor in the reign of James I. he found leisure to pursue his philosophical studies. While invested with the latter of these exalted offices, a circumstance occurred which was fatal to his fortune and his reputation. He was accused before the House of Lords, of bribery and corruption, fined 40,000*l.* and sentenced to imprisonment in the Tower. After a short confinement, the King restored him to liberty, and granted him a free pardon. Mortified however at his disgrace, he declined all public employment, and devoted himself to retirement. The greater part of his im-

^u The Queen asked him, when he was a little boy, how old he was? "I was born, Madam," said he, "two years after you began your happy reign."

mortal works was the fruit of his later years. He died in the year 1626, aged 66, of a fever caused by pursuing, with more intense application than his health could bear, some experiments on the preservation of bodies.

Lord Bacon was the great projector of a plan for conducting the researches of philosophy upon the most accurate and comprehensive principles. He proposed to substitute experiment for theory, and laid the foundation of a solid edifice of human knowledge, which rises in due proportion and regular order from earth to heaven. To explain the full meaning of this allusion, it may be proper to give a general view of his principal works, that is, his *Advancement of Learning*—*De Augmentis Scientiarum*—and *Novum Organum*.

In his “*Advancement of Learning*” he has laid down the principles of genuine philosophy, not founded upon hypothesis and conjecture, but truth and experience. His plan required him to take an accurate review of the state of learning. That he might not be bewildered in a subject so intricate, he has arranged the numerous arts according to the three great faculties of the mind—memory—imagination—and judgment—under three classes—history, poetry, and philosophy. These may be considered as the principal trunks, from which shoot forth all the smaller branches of science. Whatever he found to be imperfect or erroneous, he has pointed out, together with the best means
of

of improvement. At the end of this treatise, he has traced out, as in one general map, the several provinces of science that were neglected, or unknown.

The design of the “*Novum Organum*,” which forms the second and most considerable part of the *Advancement of Learning* was to raise and enlarge the powers of the mind by a useful application of reason to all the objects which philosophy considers. Thus does Lord Bacon present to the world a new and superior kind of Logic, not intended to supply arguments for controversy, but truths for the use of mankind. It is an art inventive of arts, and productive of real, important, and new acquisitions of knowledge. It rejects the use of syllogism, and substitutes a severe and genuine *induction*—an induction which examines scrupulously the subject in question, views it in all possible lights, excludes whatever does not necessarily belong to it, and then draws conclusions as to its real principles and properties. Many proofs may be brought to show how well this mode of inquiry has since succeeded, and how fruitful it has been in new discoveries. Newton applied it with wonderful success to the science of Optics; and the additions it has made to real knowledge in Natural History, Botany, Mineralogy, and Chemistry, are sufficiently evinced by the works of Boyle, Buffon, Linnæus, Lavoisier, Fourcroy, De Lisle, and Black.

In

In order to preclude objections drawn from the supposed visionary nature, or novelty of his system, Lord Bacon treats in the third part of his instauration, on the *Phænomena Univerſi*—this is intended to form a collection of materials towards a natural and experimental history. Such a work he thought indispensable, as without it the united endeavours of all mankind, in all ages, would be insufficient to erect the great structure of the sciences. His *Sylva Sylvarum* is a store-house of materials, not arranged for ornament, but collected for the service of the philosopher, who may select such as suit his purpose, and with them, by the aid of his *Novum Organum*, build up some part of a self-evident philosophy, which is the completion of his system. If several eminent men, of the different countries of Europe, following his steps in the road which he prepared for them, have advanced farther into the provinces of nature and science, and surveyed them with more attention, yet to him is due much of the honour of their discoveries *.

In the same year, 1627, in which Lord Bacon died, ROBERT BOYLE was born, of a noble family in Ireland. During the time of his residence at Florence, the great Galileo died in a neighbouring village. The perusal of his works increased his love of natural philosophy. On his return to Eng-

* My statement is taken from the Life of Lord Bacon, prefixed to his works by Mr. Mallet. See the Tatler, No. 267, for an excellent character of Lord Bacon.

land,

land, he applied himself with great diligence to various studies, and in particular to chemistry. He was one of the members of that small but learned body of men, who, when all academical pursuits were interrupted by the civil wars in 1645, held private meetings, first in London, and afterwards in Oxford, to investigate subjects of natural knowledge upon that plan of experiment which Lord Bacon had delineated. At first they styled themselves the Philosophic College; but after the restoration, when they were incorporated, they obtained the name of the Royal Society. During his residence in Oxford, where he enjoyed the friendship of some of the most ingenious and philosophical men of his times, viz. Wilkins, Wallis, Ward, Willis, and Wren, he improved that admirable engine the air pump, which had been invented by Otto Guericke, of Hamburgh; and by numerous experiments was enabled to discover several qualities in the air which contributed to lay a foundation for a complete theory of pneumatics. He declared against the Philosophy of Aristotle, as containing more words than things, promising much, and performing little; and taking the inventions of men for indubitable proofs, instead of building upon observation and experiment. The following short but comprehensive eulogium of him was given by Dr. Boerhaave, a distinguished physician, philosopher, and chemist. He asserts, that "Mr. Boyle, the ornament of his age and country, succeeded to the genius and inquiries of the great Chancellor Verulam. Which, says he, of Mr. Boyle's writings

ings shall I recommend? All of them. To him we owe the secrets of fire, air, water, animals, vegetables, and fossils; so that from his works may be deduced the whole system of natural knowledge."

The sketch of these eminent men is more rapidly and imperfectly traced, that we may hasten to one whose reputation is extended to all those parts of the civilized world, where the sciences have made any progress.

SIR ISAAC NEWTON was born at Woolstrop, in Lincolnshire, in 1642. He was sent to Trinity College, Cambridge, at 18 years of age, when the great Dr. Barrow was master of that society. In 1667 he was elected Fellow of his College; and two years after, Dr. Barrow resigned to him the mathematical professorship. In 1688 he was chosen one of the members to represent the University in the Convention Parliament. In 1696 he was appointed, by Lord Halifax, Warden of the Mint, and was chosen President of the Royal Society; and continued so till his death. He was knighted, in consideration of his great merit, by Queen Anne, in 1705; and he died in 1727, in the 85th year of his age. He was buried, with suitable honours, in Westminster Abbey, where a stately monument is erected to his memory. The detail of these facts is interesting, because the distinctions which were conferred upon him were very appropriate, and as highly honourable to those who conferred, as to him who received them.

The

The progress made by Newton in mathematical knowledge, was rapid and astonishing. It was the rare quality of his quick and comprehensive mind to make science his own by intuition, for he is said to have understood Euclid at the first perusal. Such was the maturity of his understanding, that he had laid the foundation of his principal discoveries by the time he was twenty-four years of age. Uninfluenced by those philosophers who, wishing to account for the constitution of the universe, had disguised their ignorance of its laws under specious names, or indulged their fancy in the formation of unfounded theories, he rejected the occult qualities of Aristotle, the pre-established harmonies of Leibnitz, and the vortices of Des Cartes^y.

Not,

^y René Des Cartes, a soldier as well as a philosopher, flourished at the beginning of the 17th century. Possessing a lively imagination, he formed a new scheme of natural philosophy. He supposed that the Creator originally divided matter into small square masses; and that from the motions communicated to each, arose as many different *vortices*, or eddies, as there were masses moving about common centres. The continual friction of the parts of matter produced three elements. The first, or most subtle, occupies the centre of each system, or vortex; and this matter constitutes the sun and the fixed stars. The second element forms the atmosphere; and all the matter between the earth and the fixed stars. The third forms the earth and all the terrestrial bodies, comets and spots in the sun. This visionary system was fashionable in all the Universities of Europe, and particularly at Cambridge, when Newton began to flourish. Des Cartes prepared the way for Newton by expelling the occult qualities, accidents, and substantial forms of Aristotle, from the schools,

Not, indeed, that he wished to sacrifice truth to novelty, for he followed his predecessors wherever to follow them was safe. He accompanied Copernicus and Galileo to the extent of their observations; and then, trusting to the energy of his own faculties, took a bold flight to new discoveries. From a survey of the evidence produced in the controversy upon the subject, he may be pronounced not to have followed the steps of Leibnitz in the art of calculating by fluxions, but to have been the original author of that method; an honour he declined to claim, with that diffidence which was the constant companion of his genius².

Such a mind as that of Newton naturally derived the principles of discovery and philosophical investigation from the most common incidents. When forced to quit Cambridge by the plague, in 1665, he was led, by seeing apples fall from the trees in his garden, to meditate upon the cause which made them descend to the earth. He pursued his observations upon this subject, till he de-

and by applying Algebra to the solution of geometrical problems. Much to the honour of the French literati, particularly Maupertuis and Voltaire, they abandoned the whimsical reveries of their countrymen to follow nature and the English philosopher. Voltaire had so exalted an opinion of him, that he scrupled not to declare, that if a general assembly could be convened of all the men of talents who ever flourished, they would, without hesitation, assign the place of precedence to Newton.

² See Hutton's Dictionary, article Fluxions.

terminated that gravity, or the principle which causes bodies to fall to the ground, extends its influence throughout all nature. It is essential to all bodies, retains the planets in their orbits, and reaches from the sun to the earth, to the most distant planet of the solar system, to the most remote comet, and probably to the extent of space. He applied this principle of gravity to explain the motions of comets; and he endeavoured to shew the nature of their orbits, and to determine their periodical times. His followers ventured to calculate, upon his principles, the return of one of them; and their calculation has been established by the fact, with respect to the comet which appeared in 1758.

Improving upon the discoveries of Kepler, Newton demonstrated, that the planets were attracted towards the sun as to a common centre; that the force of this attraction was reciprocally as the squares of their distances from this centre; that they revolved in ellipses, and that the squares of their periodical times vary, as the cubes of their mean distances^a.

Persevering with undiminished ardour in his philosophical labours, he determined the figure of the earth to be a *spheroid*, that is, it is nearly spherical, having its axis or diameter at the poles shorter than its diameter at the equator. The travels of the

^a See Vince's Astronomy, vol. i. p. 100.

French academicians, to measure the unequal lengths of a degree at the equator and the poles, served only to verify, by actual observation, this problem which he had solved in his closet.

In some branches of philosophy he was much indebted to his predecessors; with respect, however, to the nature and properties of *light* and *colours*, he was the author of a theory as new as it was just and beautiful. This was his favourite and unremitting pursuit for thirty years. He calculated the velocity of light, as it flows in perpetual streams from the sun. He scrutinized its properties, and determined its laws. It is not of one simple colour, but is composed of many: this he found by dividing a ray into its constituent particles, and observing that each ray had its own peculiar colour inherent in it. The seven primogenial colours of which light is composed, are thus accurately and philosophically described by Thomson, in his Poem to the Memory of Sir Isaac Newton, in the order in which they appear divided when a ray of light has passed through a prism.

“ He from the whitening undistinguish’d blaze
Collecting every ray into his kind,
To the charm’d eye educ’d the gorgeous train
Of parent-colours. First the flaming *red*
Sprung vivid forth; the tawny *orange* next;
And next delicious *yellow*; by whose side
Fell the kind beams of all-refreshing *green*.
Then the pure *blue*, that swells autumnal skies,
Ethereal play’d; and then of sadder hue

Emerg’d

Emerg'd the deepen'd *indigo*, as when
The heavy-skirted evening droops with frost.
While the last gleamings of refracted light
Dy'd in the fainting *violet* away."

The principal parts of the Newtonian philosophy, are contained in the three books of *Philosophiæ Naturalis Principia Mathematica*, first published in the year 1687. The leading subject of this incomparable work is the doctrine of motion, the most considerable of all others for establishing the first principles of philosophy by geometrical proof. The author first explains the real phenomena of motion, arising from the natural powers of gravity, elasticity, and the resistance of fluids. He demonstrates in what manner centripetal forces may be found, how the motions of bodies may be found in given orbits, what are the laws of the rectilinear ascent and descent of bodies, what are the motions of bodies tending towards each other with centripetal forces, and what the attractive forces of bodies spherical, or not spherical. In the second book, he treats of the motion of bodies which are resisted in the different ratios of their velocities, of the circular motion of bodies in resisting media, of the density and compression of fluids, of the motion and resistance of pendulums, of motion propagated through fluids, and of the circular motion of fluids. By the propositions mathematically proved in these books, he derives in the third book, from the heavenly phenomena, the forces of gravitation with which bodies tend towards the sun and the several planets. Then, from

other demonstrations, he ascertains the magnitudes and forms of the planets, explains the causes of the precession of the equinoxes, the motions of the planets, the moon, and the comets, and the flux and reflux of the sea. He concludes the work with a general scholium, or application, containing reflexions on the principal parts of the great and wonderful system of the Universe, and on its infinite and eternal Creator and Governor^b.

The active mind of Newton sought for relaxation from his intense scientific pursuits in researches into history. He applied astronomy to rectify the computations of chronology, and succeeded in referring the most remarkable events, that were obscured by remote antiquity, to the most probable periods of time. Engaged in studies which immediately referred to the great laws which regulate the universe, and the illustration of the prophetic parts of revelation, he felt the influence of Almighty power so strongly impressed upon his mind, that he always bowed with reverential awe on hearing the adorable name of God. His various exertions, as successful as they were transcendent, displayed the depth, the extent, and the energy of his intellectual powers; yet his diffidence was as remarkable as his genius. When one of his friends had spoke in handsome terms of his extraordinary talents, the philosopher, in an easy and unaffected manner, assured him, that, for his

^b Biographia Brit. article Newton, and Brucker, vol. ii. p. 612.

own part, he was sensible, that whatever he had done worth notice, was owing to *patience of thought*, rather than any extraordinary sagacity. Commencing his researches with plain and obvious principles, and terminating them with the most sublime discoveries, the progress of his mind was like the mystic ladder in the vision of the Patriarch, which reached from earth even to the throne of the Almighty. It reflects no small degree of credit upon the understandings of men, to comprehend his discoveries, and it is no small happiness to every person of a scientific turn of mind to live subsequent to his age. Our country, numerous as are the great men recorded in her annals, may take a peculiar pride in adding *him* to the number, who may justly be pronounced the best interpreter of the laws of nature, and the brightest luminary of science.

This great philosopher, not only improved the system of astronomy, but with a view to ascertain more accurately the wonders of the starry heavens, he framed telescopes upon his own scientific principles. In the year 1672 he presented to the Royal Society two reflectors, constructed with spherical specula. DR. HERSCHEL, whose attention to astronomy has been incessant, and his success astonishing, has found no instruments so well adapted to minute and particular observations as such as were of this construction. He has augmented the magnifying power of telescopes beyond the most sanguine

sanguine hopes of astronomers, and has thus been enabled to enlarge the boundaries of the science, or rather to shew that no boundaries can be fixed to it. The discovery of the Georgium Sidus, and its satellites, will perpetuate his fame; and as that planet is at least twice the distance of Saturn from the Sun, the former bounds of our system are doubled. By the direction of his glasses to the celestial regions at large, he has opened a prospect not only of new stars, but new systems of stars. With a Newtonian reflecting telescope, of 20 feet focal length, and an aperture of 18 inches, he has surveyed the *Via Lactea*, and found that it completely resolved the whitish appearance which it makes to the naked eye into stars; and he calculated, that this number could not be less than 50,000. By examining other parts of the heavens, he has discovered that the vast expanse of the sky consists of *nebulae*, or innumerable collections of stars, each of which may be a sun, not only equal in point of magnitude and heat, but even far superior to ours.

Although the services which eminent mathematicians, and especially Newton, have rendered to the cause of science are highly important, and the detail of them is curious and interesting, yet we are not so much dazzled by the lustre of their names, or astonished by the extent and the variety of their discoveries, as to think that the works of nature are solely to be viewed through the medium of theorems and calculations. The works of the
great

great Creator are not confined to abstract considerations of physical properties, as the sole criteria of their excellence. The sublime productions of Almighty power, the sun shining in meridian glory, the moon pouring her mild light upon the earth, the ocean rolling its vast floods, and the beautiful colours which diversify all objects, charm the eye, and please the fancy, by their external appearance, at least as much as an inquiry into their laws and constitution can satisfy the understanding. Too much speculation upon the properties of matter is calculated to destroy that relish for the elegant pleasures of the imagination, which nature has designed for our enjoyment: while science is allowed its due share of importance in the improvement of the understanding, it must still be regarded as of *secondary* consideration to various parts of polite literature; which, more especially in its historical branches, has a direct tendency to form the manners, as well as exercise the judgment, and affords rules and examples immediately applicable to the business and duties of social and active life.

“ Apt the mind and fancy is to rove,
Uncheck'd, and of her roving is no end :
Till warn'd, or by experience taught, she learn
That not to know at large of things remote
From use, obscure and subtle, but to know
That which before us lies in daily life
Is the prime wisdom ; what is more, is fume
Or emptiness, or fond impertinence,

And

And renders us in things that most concern,
Unpractis'd, unprepar'd, and still to seek ^c."

As to point out the relative importance and utility of these studies is perfectly consistent with my general plan; so should I esteem it an act of injustice to withhold from those who make deep researches into science, their due commendation. The University of Cambridge furnishes abundant examples of the proficiency of her members in the various branches of the Mathematics. And it cannot be thought foreign to my purpose, as an advocate for the acquirement of general knowledge, to remark, that many of the students recorded in her annual lists of honours have given ample proofs of their progress in classical learning, and their skill in elegant composition. This is sufficient to shew not only what may be accomplished during the usual period of academical education; but that polite learning and science, so far from being incompatible, or at variance, may advance hand in hand in the cultivation of the mind, and be united in that friendly association, which connects, by ties more or less apparent, all liberal studies.

^c Milton's Par. Lost, book viii.

CHAPTER IV.

The Works of Nature^d.

IT is the privilege of MAN, while other animals are confined within the limits, which instinct has prescribed, to carry his observations beyond his own immediate wants, and to contemplate the Universe at large. He extends his inquiries to all the objects, which surround him, and exercises his judgment, and informs his understanding, by ascertaining their nature, properties, and uses. In the various branches of the mathematics, in the speculations of metaphysics, or in searching the records of history, he is solely intent upon the operations of his own mind, or the actions of himself and his fellow-creatures: but in the study of nature, he examines every object presented to his senses, and takes a general survey of the wide prospects of the creation. The air he breathes, the earth he treads, the ocean he crosses, the starry heavens on which he gazes, the mines and caverns he explores, all supply him with abundant materials for his researches. The terraqueous

^d Many observations in this chapter are taken from Derham's *Physico Theology*, Ray's *Wisdom of God in the Works of the Creation*, *Etudes de la Nature*, par St. Pierre, and Sullivan's *View of Nature*.

globe presents a most sublime prospect, equally worthy of the capacity of man to contemplate, and beautiful to his eye to behold. And the treasures of nature, which this prospect comprehends, are so numerous, that they may furnish employment for his greatest diligence, stimulated by the most ardent curiosity, and assisted by the most favourable opportunities. At the same time that she solicits him to follow her not only into her open walks, but likewise to explore her secret recesses, she fails not to reward him with the purest gratifications of the mind, because at every step he takes, new instances of beauty, variety, and perfection are unfolded to his view.

The study of the works of nature is in itself capable of affording the most refined pleasure, and the most edifying instruction. All the objects with which we are surrounded, the smallest as well as the greatest, teach us some useful lesson. All of them speak a language directed to man, and to man alone. Their particular structure and formation convey to us a most pleasing and interesting truth. Their evident *tendency* to some determined *end* marks the design of a great Creator; and their mutual relations, both to us and to each other, are so manifest, as to point out the various links in the vast chain of creation. They have both a physical and a moral use: they enrich our lives with conveniencies, instruct our understandings with important truths, and warm our hearts with the most ardent gratitude to the supreme Being.

Being. The volume of creation is replete with wisdom; it contains the objects of arts, science, and philosophy, and is open to the inspection of all the inhabitants of the globe. Nature speaks by her works an universal language, which is peculiarly adapted to the inclination and capacity of the young, whose curiosity may be excited and gratified by turns: but more profound and extensive inquiries are suitable to persons of every age; and no subject can be more worthy of their attentive observation.

The different theories of the earth, the generation of animals, the first population of the world, the perceptive power of vegetables, and the internal structure of the globe, are subjects respectively supported by arguments, which may rather invite assent by their plausibility, than produce conviction by their evidence; and may perplex our minds, without satisfying our judgment: but no one can survey the common appearances of nature, the wonders of the heavenly bodies, and the productions of the earth and the ocean, without arriving at some accurate conclusions as to their origin and design, and without increasing pleasure at every new discovery.

It is the object of the naturalist to examine all the visible works of the creation; he is therefore employed in the most extensive province of human knowledge, as nature appears to have fixed no bounds to her productions. Still, however, if no limits

limits can be set to a subject so copious, it may at least be reduced into order. Philosophers have accordingly divided all the productions of the globe into three classes, which are called kingdoms; and comprehend, I. ANIMALS; II. VEGETABLES; and III. MINERALS.

THE ANIMAL KINGDOM.

Linnæus, the celebrated Professor of Upsal, in Sweden, and President of the Academy of Stockholm, overcame all the difficulties which poverty laid in his way, and raised himself to the highest distinction, as a most ingenious and indefatigable naturalist. He distributes the animal kingdom into six classes. I. Mammalia, or animals that suckle their young; which includes man, the quadrupeds, and the whale-kind. II. Birds. III. Amphibious animals. IV. Fishes. V. Insects. VI. Worms. This system includes 354 kinds, and nearly 6000 known species^c.

Class I. *Mammalia*.

I. The Mammalia are divided into seven orders. These orders are chiefly regulated by the number and situation of the teeth. 1. *Primates*, or animals with one canine and four cutting teeth. This order

^c Smellie's Philosophy of Natural History.

includes man, and all the ape, monkey, and bat kinds. 2. *Bruta*, or animals which have no cutting teeth in either jaw, as the elephant, ant-eater, &c. 3. *Feræ*, or animals whose cutting teeth vary from ten to two. This order includes most of the rapacious quadrupeds, as the dog, cat, and bear-kinds, &c. 4. *Glires*, or animals which have only two cutting and no dog-teeth, as the mouse, squirrel, hare, &c. 5. *Pecora*, or animals which are hoofed, and have no cutting teeth in the upper jaw. This order includes the camel, the deer, the sheep, and the ox kinds, &c. 6. *Belluæ*, or quadrupeds with cutting teeth in each jaw, as the horse, the sow, &c. 7. *Cetæ*, or animals whose teeth vary greatly in different genera. This order comprehends all the whale tribes, which Linnæus, from certain similarities of structure, has arranged under the class of quadrupeds.

Class II. Birds.

This class Linnæus divides into six orders. The distinctive characters of the orders are chiefly derived from the bills and the feet. 1. *Accipitres*, eagle or hawk kind, birds with hooked bills, and short robust limbs. Under this order are comprehended vultures, falcons, owls, &c. They build their nests in rocks, and other lofty situations. 2. *Picæ*, pies, or birds with bills shaped like a knife, and convex on the backs. Their short and strong limbs are fitted for walking, being short and pretty

pretty strong. They build their nests in trees. 3. *Anseres*, ducks, have smooth bills, covered with a skin, and expanded at the end. Their toes are connected by a membrane, which enables them to swim. They generally build their nests on the ground. 4. *Grallæ*, or birds with obtuse and nearly cylindrical bills. The limbs are fitted for walking, and the thighs are partly destitute of feathers. They generally build their nests on the ground. To this order belong cranes, snipes, &c. 5. *Gallinæ*, or birds with convex bills. The toes are divided, but strongly connected above by articulations, and fitted for walking or running. This order comprehends the pheasant, grouse, peacock, &c. 6. *Passeres*, or birds with conical sharp-pointed bills. To this order belong the pigeon, the swallow, the thrush, &c.

Class III. Amphibious Animals.

This class comprehends all those animals which, from certain peculiarities in the structure of their lungs, are enabled to live either in air or in water. Linnæus divides this class into two orders: 1. *Reptilia Pedata*, or reptiles furnished with feet, including turtles, lizards, frogs, &c. 2. *Serpentes Apodes*, or reptiles without feet. This order comprehends all the serpent and snake kinds.

Class

Class IV. Fishes.

In the class of fishes, which Linnæus divides into six orders, the principal marks of distinction are derived from peculiar circumstances attending the gills and fins. The first four orders comprehend all those fishes which have osseous gills; and this fact must be understood as applicable to the other characters the author employs to distinguish these orders.

Order 1. *Apodes*, or fishes which have no ventral, or belly fins. This order comprehends all the eel tribes, whether they inhabit seas, lakes, or rivers. 2. *Jugulares*, or fishes with the ventral placed before the pectoral fins, as in the haddock, whiting, ling, &c. 3. *Thoracici*, or fishes with the ventral situated near the pectoral fins, as in the feather-lasher, holibut, plaise, &c. 4. *Abdominales*, or fishes with the ventral situated behind the pectoral fins, as the pike, the mullet, the herring, &c. 5. *Branchioflegi*, or fishes whose gills are destitute of osseous matter, as the sun-fish, pike-fish, frog-fish, 6. *Chondropterygii*, or fishes with cartilaginous gills, as the sturgeon, dog-fish, balance-fish, &c.

Class V. Insects.

Under this class Linnæus comprehends all animals which are provided with antennæ, or feelers,

situated in the fore part of their heads. The orders of insects, which are seven in number, are chiefly derived from their wings. They are distinguished into those which have four, those which have two, and those which are destitute of wings. To the first order Linnæus gives the appellation of *Coleoptera*, or four-winged insects, whose upper pair consist of a crustaceous or horny substance, and join in a suture or ridge. These cover and defend the under pair, which are of a soft and flexible texture. This order includes the whole *Scarabæi*, or beetle tribe.

2. *Hemiptera*, insects which have likewise four wings; but the upper pair, instead of being hard and horny, have a resemblance to fine vellum, as in grasshoppers, locusts, crickets, &c. 3. *Lepidoptera*, or insects whose wings are covered with imbricated scales. This order comprehends all the butterfly and moth tribes. 4. *Neuroptera*, or insects with four membranaceous wings, so interspersed with delicate veins, that they resemble beautiful net-work, as the dragon-fly, the spring-fly, &c. 5. *Hymenoptera*, or insects with four membranaceous and naked wings, as the wasp, the bee, &c. In some of the genera, however, arranged under this order, the neuters and others, the males or even the females, have no wings. Their tails, except in the male sex, are armed with a sting. 6. *Diptera*, or two-winged insects. Beside wings, the species of this order are furnished with what is called a halter, or a poiser, which is situated under each wing, and terminates in a capitulum, or knob. Under this division are comprehended

prehended the gad-fly, the gnat, &c. 7. *Aptera*, or insects which are destitute of wings, as the flea, the scorpion, &c.

VI. *Vermes*, or *Worms*.

This order includes not only all the insects commonly called worms, but all testaceous animals, and the zoophytes, or plant animals.

The Comparative Nature of Man.

I. When the Supreme Being called the universe into existence, he began with the most simple elements, and proceeded, first to the creation of the vegetable tribes, then to the inferior animals, and finally to the human race^f. Man begins his speculations with himself, and, from contemplating the structure of his own body, and the faculties of his mind, proceeds to survey the rest of the creation. He considers the properties of animals, the plants which cover the earth, and the masses of unorganized matter, which are found beneath its surface: and this view raises his mind from the contemplation of effects so numerous, so diversified, and so wonderful, to the discovery of their primary cause.

Man, the image of the Deity, the last and noblest of all his works, is distinguished from other animals, no less by his external form, than his in-

^f Gen. i. and ii.

ternal faculties. The most complete knowledge of him is derived from comparison; for if the brute creation had no existence, his nature could not be accurately defined. Such is the advantage to be derived from comparative anatomy, and the contrast between the intellectual powers of man, and the instinct of beasts. The external figure of the human species indicates him to be the lord of the creation: his body is upright, and his countenance is stamped with the characters of dignity and sovereignty. He alone expresses the gladness of his soul by laughter, and he alone sheds the tears, which spring from emotions of sympathy unknown to animals^s. His erect posture and majestic deportment announce the superiority of his rank. He touches the earth only with the extremity of his body; his arms and hands execute the purposes of his will, and bring every thing within his reach, which can minister to his wants and his pleasures.

Man is a thinking and a rational being. His body is divisible, extended, and penetrable, and subject to disease, decay, and death; his soul is

^s Naturæ imperio gemimus, cum funus adultæ
Virginis occurrit, vel terrâ clauditur infans,
Et minor igne rogi. ——— separat hoc nos
A grege mutorum, atque ideo venerabile soli
Sortiti ingenium, divinorumque capaces,
Atque exercendis, capiendisque artibus apti,
Sensum a cœlesti demissum traximus arce,
Cujus egent proni, et terram spectantia——

Juvenal, Sat. XV.

indivisible,

indivisible, unextended, and immaterial. He has the brilliant and inventive faculty of imagination to form the most various ideas; he has an active memory, not merely resulting from a renewal of sensations, but retaining with exactness the impressions of preconceived ideas; and he possesses a judgment to discriminate, compare, and combine these ideas, and to deduce conclusions from them. By the superiority of his courage and ingenuity, he subdues animals far more bulky, more alert and stronger than himself, and makes them subservient to his purposes. He possesses the exclusive faculty of speech, as well in a savage as in a civilized state. The organs of other animals, the tongue, and the palate, are nearly as perfect as his; but they cannot speak, because they are destitute of the power of thought. The cries, which they utter, more nearly resemble the sounds of a musical instrument, or the repetition of an echo, than the articulate tones of the human voice^h. In man there is not an instinct common to the whole species, but a mind peculiar to every individual, which not only prompts him to supply his natural wants, but instigates him to all the various exertions of industry, and the diversified operations of genius.

In the direction and use of these faculties, which are common to him with the inferior animals, may

^h Camper, a celebrated German anatomist, in his *Kleinere Shriften* (smaller works) has proved, that the vocal organs of the Ourang-outang are different in their construction from those of man, and are not adapted to articulation.

*What becomes of my dear friend
 after the day of a certain year then was
 Enthusiasm*

be discerned the superiority of his natureⁱ. It is by the exertion of his judgment, that he is enabled to estimate the powers of all other creatures; but they are totally incapable of ascertaining his; that he is empowered to pursue every great and noble object, to enlarge his knowledge in every direction, and make the important discoveries of science, art, and philosophy. It is his soul, which is the seat of conscience, and makes him feel that he is accountable for his actions. It is this, which elevates him above sensible things, and inspires him with the desire of happiness and immortality.

ⁱ "The Creator has given us *eyes*, by the assistance of which we discern the works of creation. He has moreover endowed us with the power of *tasting*, by which we perceive the parts entering into the composition of bodies; of *smelling*, that we may catch their subtile exhalations; of *hearing*, that we may receive the sound of bodies around us; and of *touching*, that we may examine their surfaces; and all for the purpose of our comprehending, in some measure, the wisdom of his works. The same instruments of sensation are bestowed on many other animals, who see, hear, smell, taste, and feel; but they want the faculty, which is granted us, of combining these sensations, and from thence drawing universal conclusions. When we subject the human body to the knife of the anatomist, in order to find in the structure of its internal organs something which we do not observe in other animals, to account for this operation, we are obliged to own the vanity of our researches; we must therefore necessarily ascribe this prerogative to something altogether *immaterial*, which the Creator has given to man alone, and which we call *SOUL*." Linnæus's Reflections on the Study of Nature, p. 12.

Another

Another property, which essentially distinguishes man from the other animals, is, that he is a *religious* being. They partake not with him in any degree, or in any respect, this sublime faculty, which is the glory of human intelligence. By his piety man is exalted above the beasts, is enabled to form a conception of the general plan of nature, and confirms the idea of order, harmony, and regularity, which he derives from surveying the works of creation, by the glimpse which he catches of the Creator.

All nations are impressed with an opinion of the existence and the providence of a Deity; not that they all obtain a knowledge of him, after the manner of a Socrates or a Newton, by contemplating the laws he has given to the universe, or the general harmony of his works, but by dwelling on those beneficial effects of his power, which interest them the most. The Indian of Peru worships the Sun; the native of Bengal adores the Ganges, which fertilizes his plains; and the wandering Iroquois implores the spirits, who preside over his lakes and forests, to grant him success in fishing, and favourable seasons for the chase. The Natches, a ferocious tribe, bordering on the Mississippi, erect temples, and offer the skulls of their enemies to the god of war: whilst other American savages, in a purer spirit of devotion, confess a supreme Being wise and benevolent, and inferior deities, some good and some bad, to whose care is intrusted the government of the world. The same belief prevails

among the negroes of Benin and Congo; among the natives of New Zealand, of Java, of Madagascar, of the Carribbee and the Molucca islands. The sentiment of piety is therefore a feature as discriminating of man as the principle of reason. It is an image, which, however mutilated by the course of time, debased by superstition, or veiled by mystery, marks him wherever he is found; and is discoverable as much in the most remote and unconnected islands in the recesses of the ocean, as upon extensive continents, where the communication of opinions and the intercourse of travellers are most easy.

In the course of our observations upon the various animals of the globe, we cannot fail to remark the uniform care, which they take of themselves and their offspring. The general laws, by which they are governed, have a constant reference to their preservation and increase. They exert the most watchful circumspection as to the places they frequent, and the enemies they avoid; and they display the greatest ingenuity in the formation of their dwellings. In such instances it cannot escape our observation, that there is an evident tendency to a determined end, and that the means with which nature supplies them is admirably adapted to that end. The principle which guides them is *instinct*, and not *reason*. They are impelled by necessity, rather than led by choice, and are passive to the impressions made upon them by external objects. Hence their works and actions are always
uniform

uniform and invariable. The salmon, after having explored the wide ocean, always endeavours to return, in defiance of all the obstacles which oppose her progress, to the same river, to deposit her spawn. The bee always frames her cell in the form of an hexagon, which is the most capacious of all the figures that can be joined together without any interstices. And the lark builds her nest in the same places, and of the same materials, and at the same season of the year. Were they capable of invention, they would not be limited to one invariable plan; reason would show itself by new efforts, and the variety of their ideas would not fail to diversify their industry. It is solely in the breast of man, that the power of producing different effects is fixed; and consequently it is to him alone we must look for the power of choice, originality of design, and various inventions. But his superiority does not end here.—*Reason* is the substitute for those qualities, which animals possess in a degree superior to man. He has not indeed the wings of an eagle, to convey him with rapidity to the most distant places; he does not possess the horns of the stag to attack, nor the fangs of the lion to seize his prey; he is not, like them, originally clothed by the hands of nature; at his birth he is not furnished with the feathers of the bird, or the fur of the beast: but, instead of these conveniences, he is endued with the exalted faculty of reason, which teaches him the most important lessons. He feels the strong and animating conviction, that he is the lord of the creation, and that the beasts of
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the field, the fowls of the air, and the fishes of the sea, are designed to supply his wants, and minister to his comforts. Various kinds of animals are multiplied by his art, improved by his culture, and fed by his care: the relation therefore is reciprocal between them and man, and he may supply his own wants by their labour, the produce of their bodies, and even the sacrifice of their lives; but he deserves not that superiority and dominion, which Providence has given him, if he abuse them by acts of cruelty, tyranny, or any wanton exercise of his power.

The Laws and Constitution of Nature with respect to Animals in general.

That every production of nature is suited to its respective place, appears from the situation of young animals, and the particular season of their birth. As soon as the lamb is strong enough to subsist without the milk of its mother, it is supplied by the most wholesome nutriment, which it finds in the tender grass of the spring. Fishes, and other animals, which do not themselves feed their young, deposit their spawn or eggs in such places as are most convenient for bringing them to maturity, and where their progeny can easily find nutritious food in the greatest abundance. The pike leaves her spawn either in ditches, or near the banks of rivers, where thick weeds shelter them from injury, and small aquatic animals afford provision for her young,
and

and where the genial warmth of the sun favours their growth. The white butterfly fastens its eggs to the leaves of the cabbage, which furnish nutriment to the caterpillars, which are its offspring. The system of adaptation extends no less to their frame, than to the places of their abode. Their organs of motion and mode of subsistence are exactly suited to their wants and situations. The fins of the fish, the antennæ of insects, which guard their eyes, and forewarn them of danger, are as admirable in their construction and use, as the tail of the beaver, and the proboscis of the elephant. Their legs are admirably fitted to their wants and enjoyments. In some they are formed for strength only, and to support a vast and unwieldy frame, without proportion or symmetry: thus the legs of the elephant, the rhinoceros, and the hippotamus resemble massy pillars. Deer, hares, and other creatures, which find their safety in flight, have their legs entirely adapted to that purpose, and they are therefore slender, flexible, and full of nerves.

Their covering is likewise exactly suited to their places of abode. The fox and the wolf, which in temperate climates are covered with short hair, are protected in the rigour of the winter in the polar regions by furs of considerable length and of fine texture. The beaver of Canada, and the ermine of Armenia, the natives of cold climates, are remarkable for the warmth and delicacy of their furs: the elephant and the rhinoceros, the natives
of

of the fultry line, have scarcely any hair at all. The rein deer is found in the coldest part of Lapland, because his chief food is the liverwort, which grows there in abundance; and where, as the intense cold increases, he is clothed, like the other northern animals, with a skin thickly set with hair, by which covering he braves the keen frost and excessive cold. The rough-legged partridges live in the mountains of Lapland, feeding upon the seeds of the dwarf birch, and, to enable them to run up and down safely in the snow, their feet are feathered.

Repair to climates burning under the influence of the sun, and you will remark the same adaptation. The camel frequents the sandy deserts of Arabia, in order to find the barren camel's hay. He often travels over the parched deserts, where no water is to be found. All other animals would perish in such a journey, but the camel can undergo it without suffering, for his belly is full of cells, where he preserves water for many days^k.

Animals, which exercise the faculty of sight in the dark, have the *tunica choroides*, or coat behind the retina of the eye, which in the human organ of vision is black, of a white or light grey colour. The eyes of the cat species become in the dark as it were all pupil, and by this enlargement, they are enabled to see better by night than by day. It is

* Encyclop. Britan. Article Nat. History.

for this reason the traveller can keep off the lion, the tyger, and all the varieties of the same tribe by fires blazing in the night. In the day, they seldom poul in search of food, as the light is too strong for their eyes. Some animals excel in swiftness, some in force. The strength of the lion would be highly inconsistent with the timidity of the stag; and the horns of the latter would be unserviceable to the former, who rushes with impetuous fury on his prey, through the thick and entangling forests. That the particular parts of their frames are conducive in the greatest degree to vigour and growth, and that every place affords proper sustenance to its peculiar animals, is clear from the plumpness of their bodies, the agility of their actions, and the beauty of their forms, whenever they are found in a natural and wild state. The insect, visible by the assistance of a microscope, sporting in a drop of water, appears no less active and strong, in proportion to his size, than the whale which is nourished in the northern ocean; and among quadrupeds, the sleek mole, the active mouse, the shaggy bear, and the enormous elephant, discover an equal degree of health and robustness.

He who has given life to animals has varied their means of supporting it: and we cannot fail to remark an evident reason for this constitution of nature; for if all birds were to fly in the same manner, every fish to swim with the same velocity, and every quadruped to run with equal swiftness, the tribes of the weaker animals would fall a prey to

to the rapacity of the stronger, and would soon be entirely extinct.

Objects that are open to daily observation lose their effect upon our minds, but such as are rare and uncommon seldom fail to strike us with admiration. This remark is peculiarly applicable to those animals, which form as it were the connecting links in the chain of life, and which show with what facility the great Author of nature can depart from those general laws, by which he limits certain animals to peculiar elements. The sight of web-footed birds, serpents, frogs, lizards, and tortoises, which can equally betake themselves to the land or the water, excites no surprise; but how curious does the *silurus callychthys*, a species of fish, appear! When the rivulet it inhabits is dry, it has the power of travelling over land, till it finds more copious streams. The *inguana*, a species of lizard, sports in the water, or lives among trees, feeding upon the flowers of the mahot, and the leaves of the mapon, in the warm climate of Africa. The flying squirrel can extend the membranes, which grow on each side of its body in such a manner, that, being able to descend by a precipitate flight from one branch to another, it easily avoids its pursuers. The flying fish, supported by his extended fins, seeks safety in the air, to escape its enemies in the water. The beaver of New Holland has the bill and the web-feet of a duck. The ostrich is of an ambiguous class, and may be said to be rather a running, than a flying animal:

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his wings are not large or long enough to raise him from the ground, but rather serves as sails or oars to impel the air, and add swiftness to his feet. The scaly sides of the crocodile, the hard integument of the rhinoceros, and the hairy coat of the cassowary prove with what ease their Creator could vary his plans, and furnish each with a kind of covering, differing from that which belongs to their kindred species.

Such a variety of animals found in the world is a just subject of astonishment. Many are visible to the naked eye; but the magnifying power of glasses has opened new scenes of life to our views. The green leaves, the blades of grass, the pools of stagnant water, are as full of inhabitants, in proportion to their size, as the broad rivers, deep forests, and wide spread oceans, which diversify the globe. The moss and grass, to the insects inhabiting them, are gardens and forests, consisting of numberless plants, drops of water are seas, and the grains of dust and sand are precipices and mountains. The minuteness of many insects is the strongest reason for admiring the curious mechanism of their structure, which combines so many vessels, organs, joints, weapons, and membranes in a single point or speck, frequently so small indeed, that their whole frame to the unaided eye is scarcely visible. We cannot fail to discern the benevolence of nature to man in this particular circumstance of their minuteness; for if they had bulk and size, in proportion to some of the larger animals, they would be

be the most formidable of his enemies. The common insects, which now only appear to discolour the ears of corn, would then frustrate the labours of agriculture, and make the most destructive ravages in our fields and harvests.

In places most remote from the abode of man, and in every element, are animals to be found. The waters contain innumerable inhabitants. Such kinds of fish as are wholesome for food are exceedingly prolific, but those which are of a noxious kind are much less so. The same benign Providence, which has regulated this power of increase, keeps those at a distance from our shores, which we do not want; and sends those which furnish delicious food within the reach of our arts. A cod will bring forth as many eggs in a year, as amounts to the whole population of Britain: one million have been found in a flounder, and half that number in a mackarel. Among the rocky coasts are discovered tribes of shell-fish; in the wide and open ocean the shark and the grampus seek their prey: and in the Northern seas, amid the masses of ice, which abound in the Polar circle, the enormous whale secures his wintry retreat. In the deep forests of the Cape of Good Hope walks the elephant; upon the banks of the Ohio reposes the hippopotamus; and among the sedges of the Nile, and the Ganges, lurks the insidious crocodile. The rose-coloured flamingo inhabits the miry shores of the Southern ocean; between the Tropics the gay humming-bird, the smallest of the feathered race, extracts

the honey from fragrant flowers: among the sands of Africa the ostrich and the cassowary, deviating from the general laws which govern other birds, deposit their eggs, leaving their young to the fostering care of nature; and upon the summit of the craggy rocks of the Orknies, inaccessible to man, the eagles frame their capacious eyry.

Heat, if not the principle of animation, is at least its great and necessary stimulative. As soon as the sun reaches the point of the vernal equinox, his piercing rays begin to inspire universal nature with activity. Every degree he advances through the heavens hastens the progress of vegetation, and matures general production. All animals come forth from their wintry retirement, and follow with activity the dictates of their peculiar instincts. Incited by the genial influence of warmth, the feathered tribes fill the groves with their songs, the quadrupeds and reptiles disport in the verdant fields and forests, and the finny race leave the recesses of the northern deeps, to hasten in countless shoals to the coasts. Animals then obey with alacrity the universal law, which prompts them to propagate their kind, and enjoy the happiness peculiar to their respective species.

Throughout universal nature a gradation of beings may be traced; and yet their particular differences commonly escape our observation, like the various colours of the rainbow blending and mixing with each other. Where vegetation ceases, or

seems to cease, perception begins; and we trace some of the first rudiments, or sparks of it, in the actinia or sea anemone, the oyfter, and the snail. Then it ascends through various gradations of beings, distinguished by more enlarged and more active faculties, more perfect and more numerous organs, to those creatures, which approach to the nature of man. We behold the distant resemblance of his sagacity in the elephant, of his social attachments in the bee and the beaver, and the rude traces of his form in the orang-outang. We next remark discriminations between the different families of mankind, from the stupid and brutish savages of Nova Zembla to the polished Europeans, characterized indeed with the same general form and limbs, but marked by dissimilarity of features. In various climes the difference of complexion and stature is likewise observable: such as the fair countenances of the natives of the North of Europe, the swarthy Moor and Spaniard, and the olive-coloured or black Asiatic; the dwarfish Tartars of the Polar regions, and the giants of the Straits of Magellan. Nothing however is more worthy of our attention, as it constitutes a distinction, which is not merely external, but of an intrinsic and most exalted kind, than man improved in his intellectual powers, adorned by arts, and refined by philosophy, as we consider his character in a Bacon, a Boyle, and a Newton. Then we ascend to heaven itself, and contemplate the angels differing in rank and subordination, rising gradually to the archangel, who stands before the throne of God, and executes

In the same page

executes his commands. And, finally, our soaring thoughts reach the summit of the long-ascending series of beings, which is extended even to the Creator himself.

The figures and the proportions of animals, the number and the position of their limbs, the substance of their flesh, bones, and integuments, and more particularly the structure of the human frame, are replete with discoveries of the most admirable contrivance, as to their arrangement and fitness for their different uses.

That the organs of animals are essential to their preservation, and even to their existence, will appear from considering the utility of the *Eye*, which is one of the most remarkable. Supposing an animal endued with life and motion, yet still it could not know in what place to find sustenance, or by what means to avoid danger, without the faculty of sight. This constitutes in man, as well as in other animals, a refined kind of feeling, extended to distant objects. Those instruments, which are constructed with the greatest ingenuity of man, to assist his sight, are clumsy and unmanageable when compared with this exquisitely finished and flexible organ. The telescope cannot at once present us with that wide field of vision which the eye can command. The eye can instantaneously accommodate itself to every object, and to very great distance, and nothing can exceed the rapidity of its glance, but the
N 2 thought

thought by which it is excited¹. Without diminution of the energy or distinctness of its powers, it surveys the page of learning, embraces the wide prospects of sea and land, and takes in the constellations of the heavens. In what manner it can adapt itself to these very different objects and distances, seems not be clearly understood by anatomists; we know however enough of its effects to see the most evident traces of design in its formation, and its most perfect fitness to the spheres, in which different animals move.

The dominion of man is sufficiently extensive to relieve his wants, administer to his luxury, and even to indulge his pride, as the lord of the creation. Is there any thing peculiarly august in his countenance, or commanding in his erect figure, which impresses the most savage beasts of the forest with terror, and awes them into submission? Or does he derive his superiority from his intellectual powers, and his contrivance of various expedients to subdue and tame them? The latter is certainly the more probable supposition. Those animals, which have not yet become acquainted with his prowess, meet his first attacks with the most hardy presumption. The albatross and the whale do not fly from his presence, before they have felt the force of his wea-

¹ The antient philosophers discerned enough in the superficial parts of the eye of man to describe with elegance the admirable contrivance of nature. See Xenophon's *Memorabilia*, lib. i. c. 4. and Cicero de *Natura Deorum*, lib. 2,

pons. The enormous bear of the Polar regions boldly advances to meet his attack ; and the ferocious lion of Zaara, confiding in his strength, ventures singly to engage a whole caravan, consisting of thousands ; and when repulsed by numbers, and obliged to retire, he still continues to face his pursuers. On the contrary, in the populous parts of Africa, when the lion has been frequently hunted by the hardy natives, such is his dread of the human race, that even the sight of a child puts him to flight. In all countries, in proportion as man is civilized, the lower ranks of animals are either reduced to servitude, or treated as rebels ; all their associations are dissolved, except such as will answer his purposes ; and all their united strength and natural powers are subdued, and nothing remains but their solitary instincts, or those foreign habits, which they acquire from human education. Those whose daring, or those whose timid natures admit not of being tamed, seek, in the distant recesses of the forests, or the impenetrable fastnesses of the mountains, protection from an enemy, whose superior sagacity detects their arts, and discovers their retreats ; who entraps them with his snares, when not present himself ; and who, lurking behind the thick covert, discharges his unerring instrument of death, and slays them at a distance so great, as not to awaken their apprehensions of danger.

It is thus he maintains his power over all living creatures, alike in the frozen regions of the North,

and in the sultry plains of the Torrid Zone. Whenever they are discovered by his penetrating eye, the most savage and hostile tribes may for a time hold his empire in dispute: but their opposition serves only to awaken his ingenuity, and call his powers into more daring action. The horse and the dog, which enjoy his protection from the earliest period of their lives, are taught to know their master, and to adopt many of his habits of life. Upon the lion and the tyger, which the African leads captives from the forests, or upon the vulture and the eagle, which he secures when young, or brings down from their rapid and lofty flights, he at first imposes the severity of famine, watching, and fatigue, to conquer their savage nature, and reduce them to obedience. The dangers of the ocean stop not the pursuits of man, the British sailor ensnares the ravenous shark, and transfixes the mighty whale. With a boldness still more desperate, the fowler of the north climbs the perpendicular rocks of Norway or St. Kilda, or lowered from their airy summits which overhang the tempestuous ocean, explores the nests of the clamorous birds, and plunders them of their eggs and their young. From such arduous labours does man draw the means of his subsistence; from such exertions he acquires habits of courage and agility, which not only qualify him for his situation, but reconcile him to it.

Thus is constantly executed that primeval law, which secured the empire of the creation to man,
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by the exprefs voice of divine revelation, even after he had forfeited his innocence, and was debased by guilt. *And the fear of you and the dread of you shall be upon every beast of the earth, and upon every fowl of the air; upon all that moveth upon the earth, and upon all the fishes of the sea; into your hand are they delivered^m.*

Much as we may discern in the animal economy to convince us of the benevolence of nature, there are many things, which excite our surprife, and for which we cannot readily account. That ſhe ſhould ſo far in appearance counteract her own designs, as to make one animal prey upon another, ſeems extraordinary: but perhaps this law is not ſo ſevere as it ſeems to be, when we conſider, that animals have no preſentiment of their fate; that, contracted as their exiſtence is, all of them evidently enjoy that portion of happineſs, which is conſiſtent with their formation and powers. By the preſent conſtitution of the animal ſyſtem, the life and happineſs of its ſuperior orders are promoted: the bodies of the inferior claſſes, which, from their delicate ſtructure, muſt more quickly periſh, become the materials of ſuſtaining life in others; and a much larger number is enabled to ſubſiſt in conſequence of animals thus devouring each other, than could be maintained, if they all ſubſiſted upon vegetables; becauſe it is a received principle in phyſics, that animal food furniſhes more nutriment

^m Gen. ix. 2.

than vegetable substances of equal weight. It is sufficiently evident, that the various tribes of insects, by preying upon each other, preserve the fruits of the earth from those ravages they would necessarily suffer, should any one species of them multiply too fast; and even those which we drive from our habitations are formed for salutary purposes, and consume such substances as would become pernicious to the health of man, if left to a gradual decay.

For what reason nature is so prodigal in the production of animals invisible, as well as visible, to the unassisted eye; for what cause such ingenious contrivance is bestowed upon their structure, and so much elegance displayed in their colours and forms; why the more noxious animals should exist, such as the tarantula, the rattle snake, the crocodile, and the izalsalyaⁿ; are questions which naturalists will not be able to answer, until they are more perfectly acquainted with the general economy of her designs, and the particular relation and dependence of one animal upon another. To perplex ourselves with fruitless inquiries into these subjects, when we have it in our power to make such researches as are far more likely to be crowned with success, and to contribute to our

* A species of bee, armed with a poisonous sting: when it appears in Abyssinia, and the coasts of the Red Sea, so terrified are the inhabitants, that they quit their abodes, and fly to the distant sands of Beja. See Sullivan, vol. iii, p. 287.

pleasure and improvement, is a waste of time as unprofitable, and an employment equally fruitless, as to fix our eyes upon mists and fogs, when, by turning them another way, we can view a clear prospect, and see distinct objects. If an excessive curiosity should mislead us in these vain and presumptuous researches, it will only terminate in that unavailing regret, which attends every other discovery we make of the weakness of the human understanding, and the confined limits of human observation °.

• Non multum tibi nocebit transire quæ nec licet scire, nec prodest. Involuta veritas in alto latet. Nec de malignitate naturæ queri possumus, quia nullius rei difficilis inventio est, nisi cujus hic unus inventæ fructus est, invenisse. Quicquid nos meliores, beatosque facturum est, aut in aperto, aut in proximo posuit.—Seneca de Beneficiis.

Qui curiosius postulat totum suæ
 Patere menti, ferre qui non sufficit
 Mediocritatis conscientiam suæ,
 Judex iniquus, æstimator est malus
 Suique naturæque, nam rerum Parens
 Nos scire pauca, multa mirari jubet.
 Magis quiescit animus, errabit minus,
 Contentus eruditione parabili;
 Nec quæret illam, si qua quærentem fugit.
 Nescire quædam magna pars sapientiæ est.

Grotius.

CHAPTER V.

II. THE VEGETABLE KINGDOM.

THE powers of growth and of the propagation of their respective species are possessed in common by animals and vegetables; and the first step taken by nature towards endowing a creature with motion, constitutes the connexion between the animal and vegetable kingdoms; and this link in the chain of beings is formed by the oyster, and the various kinds of *zoophytes*, or those vegetable substances which are possessed of animation^p.

The *polypus* ranks as the first of plants, and the last of animals, if its propagation, as some naturalists affirm, can be effected by cuttings, similar to the multiplication of plants by slips and suckers^q.

^p Minute and feeble as their frame appears, wonderful are the structures which they raise: witness those immense coral rocks, described in Cook's Voyage, as rising almost perpendicularly like walls, in the Southern Ocean, formed by a species of the *Lithophytos*, to whose labours we owe the beautiful corals, known by the name of Madrepores and Millepores. The Zoophytes, from their protruding from their habitation, in the form of flowers, were once classed amongst the vegetable tribes.

^q See Martin's Abridgment of the Philosophical Transactions, vol. ix. p. 17, for the history of the polypus.

Difference

Difference of formation, and the power of moving from one place to another, seem to constitute the most remarkable discriminations. The limits which divide these two kingdoms, however, cannot be very accurately marked out; and the common properties of animals and vegetables are much more numerous than their essential distinctions.

The poets, both ancient and modern, have indulged the pleasing fiction of attributing to vegetables many of the properties, passions, and actions of animals. The ancient philosophers Plato, Empedocles, and Anaxagoras, did not hesitate to raise them to that distinction; and many of the modern naturalists, for instance, Cardan, Ray, Spallanzani, Watson, and Percival, were induced, by a more accurate inspection of their structure and properties, to favour that opinion. The external form of some plants leads at first view to a curious deception. One of the flowers of the *orchis* tribe resembles a bee, a second a wasp, and a third, still more uncommon, is like a spider. The *cypripedium* of South America in its nectary resembles the body, and in its petals the legs of a large spider; and this ambiguous appearance deters the humming-bird from extracting honey from its flowers. Several insects of the *mantis* genus are so exactly similar to a cluster of leaves, in their form and colour, that they are called by the sailors, who find them in the woods, walking leaves. When the tentacula of the sea-anemone, are extended, and they are themselves expanded to their greatest dimensions,

menfions, they bear fo ftrong a refemblance to a flower, that fome naturalifts have fupposed them to be vegetables. Thefe animals fixed to the rocks, and imperforate at the bafe, have a mouth fituated at the top, which they poffefs the power of dilating, till it becomes capable of receiving a large mufcle: they extract the fifh, and return the vacant fhell by the fame aperture.

Nor is the analogy of plants with animals lefs curious, on examining more particularly their ftructure and properties. The former are covered with a bark, which refembles the coat of the latter. Leaves, like the hair of animals and the feathers of birds, fall off at certain feafons. Some are clad with coarfe garments, to refift all feverity of weather; others with more flimfy raiment. The branches and tendrils of the hop, the vine, and the ivy, refemble legs and arms. The circulation of fap, like that of blood, diffufes vigour and nourifhment over all parts of vegetables. Seeds refemble little animals in embryo, and for number can only be compared to the aftonifhing abundance of nature fhewn in the fpawn of fifh. Each feed by degrees enlarges the milky juice, which forms its aliment, and is received from the parent plant, through veffels of the fineft texture.

Plants poffefs an organical, although not a progressive motion. *Mimofa*, the fenfitive plant, is well known to fhrink at the touch. The *dionæa muscipula*, or *Venus's fly trap*, closes its leaves the
instant

instant a fly settles upon them. The *hedyssarum girans*, a native of Bengal, has the appearance of voluntary motion. Two small appendages or leaflets, situated on each side of the foot-stalk, alternately meet and recede during the greatest part of the day. The *heliotropium tricoccum*^r points its flowers to the sun, and seems eager to draw nourishment from his rays. Flowers always turn towards the light; under a serene sky they expand; rain and storms cause many of them, particularly trefoil, wood-forrel, mountain ebony, wild fenna, and the African marigold, to be contracted; and at night they hang down their heads, and fold up their leaves, as if yielding to the power of sleep. Some of them, like some animals, sleep during the day, and wake during the night. The *cactus grandiflorus*, or *nightflowering cereus*, opens its flowers on the setting of the sun, and closes them at break of day. The influence of heat in the vernal season is the same on animals and vegetables; for when the birds begin to warble in the forests, and the finny race to move in the deeps, the plants shoot forth their flowers, and propagate their kind. The wood-anemone begins to blow in Sweden, when the swallow arrives; and the marsh-marigold flowers, when the cuckoo sings^s.

^r This flower is very common in the environs of Montpelier and in Germany, but it is very different from the English sunflower.

^s The classical reader may recollect, that as the cuckoo arrived in Attica at the time when the fruit of the fig-tree made its appearance, the cuckoo and the young fig were called by the same name, Κοκκυξ.

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These and various other analogies are sufficient to show, that the animal and vegetable kingdoms approach very near, or rather are united to each other; and that the ordinary distinctions made between them are more serviceable for the common purposes of discrimination, than consistent with the precision of philosophy, or the essential differences of nature.

These observations lead us to the consideration of that pleasing science, which opens a prospect of the vegetable kingdom, and comprises the knowledge of all kinds of plants. The study of Botany is not only an elegant amusement, and leads to a beautiful display of the order and variety established by nature; but from the different and important uses of plants in food, raiment, medicine, and many arts, it is of real and essential service to mankind^t.

The range of Botany is wide and extensive, from the small moss and the fungi, which are intermixed

^t Many of my observations upon this subject are taken from Evelyn's Sylva, Grew on Vegetables, Derham's Physico-Theology, Watson's Chemical Essays, Rousseau's Letters on Botany, Darwin's Loves of the Plants, the works of Linnæus, &c. &c. It is with no small degree of satisfaction, I acknowledge, that this part of my work has received several valuable illustrations from a lady, whom I am happy to call my relation. If her proficiency in Botany and other branches of natural history, as well as the excellence of her understanding, and the goodness of her heart, were as generally known beyond the circle of her friends, as they deserve to be, it would be superfluous for me to add the name of *Mrs. Browne, of Norwich*.

with

with the common grafs, to the towering pine and the majestic oak. The various kinds of grafs, which cover the earth; the flowers of all hues and forms, which exhale the most fragrant odours; beautiful shrubs and stately trees, are all subjects of the dominions of Flora.

The Linnæan, or Sexual System.

Linnæus has divided the vegetable world into twenty-four classes; these classes into about an hundred and twenty orders; these contain about two thousand families, or genera; and these families about twenty thousand species, beside innumerable varieties, which the accidents of climate or cultivation have added to these species. The names of the classes are formed from Greek words, and express the characteristics of each class. The first twelve are named from Greek numerals, and the word *andria* is used to denote stamina.

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| 1. Monandria. | 16. Monadelphia, one brotherhood. |
| 2. Diandria. | |
| 3. Triandria. | 17. Diadelphia, two brotherhoods. |
| 4. Tetrandria. | |
| 5. Pentandria. | 18. Polyadelphia, many brotherhoods. |
| 6. Hexandria. | |
| 7. Heptandria. | 19. Syngenesia, stamens united by the anthers. |
| 8. Octandria. | |
| 9. Enneandria. | 20. Gynandria, pistils and stamens together. |
| 10. Decandria. | |
| 11. Dodecandria, 12 stamens. | 21. Monœcia, one house. |
| 12. Icosandria, 20 stamens. | 22. Diœcia, two houses. |
| 13. Polyandria. | 23. Polygamia, many kinds of flowers. |
| 14. Didynamia, two powers. | |
| 15. Tetradynamia, four powers. | 24. Cryptogamia, invisible flowers. |

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The fourteenth and fifteenth classes are founded upon the *proportion* of the stamina: the next five are founded on the *connexion* of the stamina. From the twentieth to the twenty-third inclusive the classes are formed from the *situation* of the stamina. The twenty-fourth consists of such plants as have the parts of fructification impossible to be accurately observed, and includes ferns, mosses, lichens, mushrooms, &c.

The *orders* are in general deduced from the number or difference of the pistillum, or female part of fructification. The *genera* agree in the general characters of fructification. The *species* differ in proportion, figure, &c. *Varieties* differ in colour, size, or some accidental circumstance.

The parts which carry on the process of fructification are the *calix*, *corolla*, *stamina*, *pistillum*, *pericarpium*, *semen*, and *receptaculum*, all which are found in some plants, in others some of them are wanting.

Before the time of Linnæus, the description of plants was so perplexed with difficult and abstruse terms, that it only tended to make their nature more obscure, and their study more repulsive. In two successive works, he determined the genera and species of plants, in such a manner, that by retaining all the old names, which agreed with his new rules, and reforming the rest, he established a clear nomenclature, founded upon the true principles

principles of the art. He confined himself to a small number of words well chosen and appropriate, in order to make short definitions of the true character of plants. The new language of Botany, which he thus introduced, although it necessarily departed from the classical model, yet it was not encumbered with the tedious circumlocutions of the old descriptions, and is in general short, precise, and expressive. From the description of the vegetable tribes, he proceeded to assign them particular names, and thus familiarized them in such a manner, that a botanist is enabled, at first sight, to name any plant he has seen before, as well as to know its nature by its fructification, and understand its properties by the clear description which Linnæus has given of it.

But the celebrity of Linnæus arose from making the sexual distinctions of plants the basis of his system. Those parts, which had before been regarded as useless, were raised to the rank that nature had originally designed for them. This was a work of great labour, and required the most accurate scrutiny; for not only the genera, but every species was to be examined by its stamina and pistils, as he determined those to be the only parts essentially necessary to fructification. This distinction appeared to many, at first sight, to be frivolous, and was a subject of controversy among botanists; but since the Linnæan system has been established, there is no student of Botany, who is able to determine the

precise character of any genus, without having the accurate idea of these discriminating parts.

Without any intention to detract from the reputation of Linnæus, we may venture to assert, that his merit consists not so much in the discovery, as in the improvement of the sexual system. Plain intimations of it are given by some of the ancient naturalists, particularly by Aristotle and Theophrastus. Herodotus mentions, that it was a custom of the natives of Babylon to carry the flowers of the male to the female palm-tree, and thus assist the operations of nature in producing fruit. This curious fact was confirmed by the observation of Hasselquist; nor did it escape the researches of Ray and Millington, who flourished many years before the time of Linnæus. Dr. Grew, the ingenious author of the Anatomy of Vegetables, expressly affirms, that every plant is male and female: he has pointed out the close analogies between the parts of fructification and those of generation, and the correspondent offices and effects of each.

The number of plants hitherto ascertained must be comparatively small, if we consider how little is known of the vegetable productions of the globe. We are very slightly acquainted with the interior parts of Africa, with the three Arabias, the two Americas, with New Guinea, New Zealand, and the numerous islands of the Southern Ocean. What have we

we examined in the Archipelagos of the Philippines and Moluccas, or in most of the Asiatic islands? The vast coasts of New Holland, and the island of Otaheite, are said to have a Botany peculiar to themselves. It is to be wished, that our conquests in Egypt and in Ceylon, an island of infinite produce for the naturalist, may lead to many curious and useful acquisitions in the vegetable world.

“ Another Flora there of bolder hues,
And richer sweets beyond our garden's pride,
Plays o'er the fields, and showers with sudden hand
Exuberant spring ”.—”

All plants seem to grow in the same manner: the genial warmth of the sun, the refreshment of the rains, the same soils appear to suit their respective species; and, upon a superficial glance, they seem to have the same common parts. A chemical analysis discovers the same constituent principles in all, that is to say, calcareous earth, oil, water, and air, with a portion of iron, to which they owe their beautiful colours. Yet, although composed of similar materials, their juices to the eye, and to the taste, appear as various as their forms. The soporific milk of the poppy, the acrid but equally milky juice of the sponge, the acid of the sorrel, the saccharine sap of the sycamore and maple, and the resin of the tribe of pines, bear no resemblance to each other. Various are the articles

▪ Thomson's Summer.

of use and pleasure, which man receives from the vegetable world; yet how many of their qualities remain undiscovered! And the investigation of these qualities is rendered highly important by considering, that, copious as our list of esculents may be, there are doubtless many others, which might be added; and perhaps a process might be discovered, by which some plants hitherto neglected may be rendered salutary, as introduced into the *Materia Medica*; or nutritious, as an agreeable part of our common diet. The seeds of the *festuca fluitans*, or *fescue grass*, are collected in several parts of Germany and Poland, and are esteemed a delicacy in soups and gruels on account of their nutritious quality and excellent flavour. When ground to meal, they make bread very little inferior to that from wheat. In France, the *rumex acetosa*, or dock, is cultivated for the use of the table, and is introduced into soups, ragouts, and fricassees. In some parts of Ireland they eat it with milk and fish*. The French Emigrants have been observed to gather many wild plants in our fields and woods, as esculents, commonly among us reputed weeds. Many plants, for ages thought poisonous, have been of late years ascertained to be salutary.

The inward structure of plants is as regular and various, as their external forms are elegant and well-proportioned. This formation cannot have been originally designed, merely to attract and gratify the eye of an accidental spectator, but ra-

* Encyclop. Brit. article Botany.

ther to render the production more perfect. The root, trunk, branch, leaf, flower, fruit, and seed, have each its peculiar character and form, and the microscope displays all their latent beauties to the eye. Every one of them, when dissected, and seen by the aid of a glass, appears to be interwoven with complicated meshes, which vary in an endless diversity, and charm the eye by the perfect regularity of the net-work. The transverse section of a pear, when magnified, shows first the acetary, which joins the core, composed of regular circles; secondly, the pulp formed of globules, ligneous fibres, and radiated vessels, disposed in the most beautiful order; and thirdly, the ring of sap-vessels and skin formed of circles, and strait lines or ducts. There is no part in the contexture of the smallest fibre or leaf, which is not formed with the most minute exactness. The seeds of plants have the appearance of shells, unlike each other in form, and diversified with spots and stripes. Every seed possesses a reservoir of nutriment, designed for the growth of the future plant. This is the matter prepared by nature for the reproduction and continuation of each species. This nutriment consists of starch, mucilage, or oil, within the coat of the seed, or of sugar and subacid pulp in the fruit, which belongs to it. The sections of the various kinds of trees are crossed with the greatest number of regular figures, which the imagination can conceive. The lines are more or less near or remote, according to the solidity or softness of the wood. The lines, which form the texture of fir-

O 3

trees,

trees, are distant ; but those of oak are close and compact.—And this difference of texture may serve to account for their greater or less solidity, and the difference of time requisite for them to arrive at maturity.

The different vegetable productions are no less numerous than useful. The purposes, to which the trees of Britain are applied, are well known, from the flexible willow, which forms the basket, to the hardy oak, which composes the most substantial parts of a ship of war. Each possesses different qualities, adapted to different purposes. The meanest, and in appearance the most unpleasing, have their use ; even the thistle is not only the food of some animals, but is serviceable in making glass. There is scarcely a plant which, although rejected as food by some animals, is not eagerly sought by others. The horse yields the common water hemlock to the goat, and the cow the long-leaved water hemlock to the sheep. The goat leaves the *aconitum*, or bane-berries, to the horse. The *euphorbia*, or spurge, so noxious to man, is greedily devoured by some of the insect tribes. The aloe is a magazine of provisions and of implements to the Indians, who inhabit the banks of the Ohio and the Mississippi. Some plants, as rhubarb and opium, alleviate the tortures of pain ; and some, as the *quinquina*, or Peruvian bark, can subdue the rage of the burning fever^y. Wheat,
the

^y About the year 1640, the Lady of the Spanish Viceroy
of

the delicious and prolific grain, gives to the northern inhabitants of the world their most wholesome nutriment. Where the excessive heat of the climate prevents it from growing, its place is amply supplied by the bread-fruit, the cassavi-root and maize, and more particularly by rice, which is the common aliment of that great portion of mankind, who inhabit the warmer regions of the earth. Every meadow in the vernal season brings forth various kinds of grafs; and this spontaneous and most abundant of all vegetable productions requires only the labour of the husbandman to collect its harvest. The iron-wood, solid as marble, furnishes the Otaheitan with his long spear and massy club. The wild pine of Campeachy retains the rain-water in its deep and capacious leaves, not less for the refreshment of the tree itself, than of the thirsty native of a burning soil. The *tillandsia*, a kind of mistletoe, which grows on the tops of trees in America, has its leaves turned at the base into the shape of a pitcher with the extremity expanded; in these the rain is collected and preserved for the thirsty traveller, and for birds and beasts. The cocoa of the East and West Indies answers many of the most useful purposes of life to the natives of a warm climate. Its bark is manu-

of Peru, the Comitissa del Cinchon, was cured by the Peruvian bark, which was therefore called *cortex* or *pulvis comitissæ*, *cinchona*, *chinachina*, *quinaquina*, or *quinquina*. And from the interest which the Cardinal de Lugo and the Jesuits took in its distribution, it has been called *cortex Cardinalis de Lugo*, *Jesuiticus*, *Patrum*, &c.—Encyclop. Brit. art. Botany.

factured into cordage and cloathing, and its shell into useful vessels; its kernel affords a pleasant and nutritive food, and its milk a cooling beverage: its leaves are used for covering houses, and are worked into baskets; and its boughs are of service to make props and rafters. The rein deer of the Laplander, so essential to his support and subsistence, could not survive through the tedious winter, without the *lichen rangiferinus*, which he digs from beneath the snow. "On the bleak mountains of the North, the pine, the fir, the cedar, and many of the resinous trees grow, which shelter man from the snows by the closeness of their foliage, and furnish him in winter with torches and fuel for his fireside. The leaves of those evergreen trees are filiform, and thus are adapted to reverberating the heat, and resisting the violent winds which beat on elevated situations^z." All these productions, and the various trees which produce cork and emit resin, turpentine, pitch, gums, or balsam, either supply some constant necessity, obviate some inconvenience, or contribute to some use or gratification of the natives of the soils where they grow, or of the inhabitants of distant climates.

Among vegetable productions, we cannot fail to notice the tribes of *mosses*, of such variety in their forms, that they scarcely yield to any species of plants in number; and, although extremely minute,

^z St. Pierre, Study xi.

are of such an admirable structure, that they excel the stately palms of India, or the sturdy oaks of England. These mosses are dried up in summer, but in winter they revive, and assume a peculiar verdure; and as the season advances, they protect the roots of plants from cold, from the chilling blasts of spring, and the scorching heat of the summer sun.

The munificence of our monarchs has concurred with the liberality of private individuals, to indulge the lovers of Botany with repositories of the vegetable produce of different climes. The spices of India, the plants of Siberia and Africa, and the hardy flowers of the Alps, have been brought into this country, to increase collections remarkable for variety, and accuracy of arrangement, which may be seen in the botanical gardens of Oxford, Cambridge, Kew, and Chelsea.

Of the ardour with which the pursuit of Botany is capable of inspiring its votaries there have been many eminent instances. The reformation of the system by Linnæus was a strong incitement to his pupils to explore the most distant countries. Tornstroem travelled into Asia, and Hasselquist into Egypt and Palestine, where he fell a sacrifice to a lingering disorder. The fruits of his labours were not however lost to the world, as his botanical collections enrich the royal cabinet of Stockholm. Osbeck explored China and Java, Loeffling went into Spain, and afterwards to South America, where

where he died. Linnæus himself traversed Sweden and Lapland, where he braved the horrors of deserts and precipices, and suffered extreme hunger, thirst and cold. In such researches the diligence of Englishmen has likewise been conspicuous; as Sir Joseph Banks performed a voyage round the globe with Captain Cook, and brought home many vegetable treasures of the Southern Islands. The diligence of Dr. Sibthorpe, jun. late professor of Botany in Oxford, deserves to be well known. He encouraged, by his testamentary munificence, that pursuit to which he sacrificed his health, and finally his life, by two excursions into the East; and his *Flora Græca* will no doubt be a valuable monument of his scientific skill, and laborious researches.

Uncertain as our climate is, and subject to the greatest changes of weather, we may still find in England sufficient scope to gratify our taste by an extensive survey of the vegetable beauties of the creation. Exclusive of the well-known gardens of Windsor, Richmond, Kew, and Nuneham, there is scarcely a seat of any private gentleman, which does not present collections of flowers distinguished by the richest colours, and most fragrant perfume^a. Every clime supplies likewise its tributary

^a The cheerful effect produced by the sight of flowers, and the ornaments they afford to the arts, are thus elegantly described in the "Spectacle de la Nature." "Il est exactement vrai,

tary shrubs of various leaf, colour, and form to Great Britain; and few are the spots where they can be seen flourishing in a manner more nearly approaching the verdure and luxuriance of their native soils, than in the delightful pleasure-grounds of the Duke of Marlborough at Blenheim, and the Marquis of Buckingham at Stow. Or if the traveller wishes to behold nature in her original state, where the hand of art has not clothed her with exotic ornaments, let him repair to the New Forest, to the woods that overhang the foaming streams of the Derwent, reflect their images in the lakes of Winander Mere, and Ullswater, or diversify the romantic prospects of Duncombe and Piercefield:—such wild and solemn scenes may suggest the pleasing recollection of the first age of the world, when the parents of the human race, blessed with unspotted innocence, roved amid the blooming flowers and shady groves of paradise, and there enjoyed the society of angels, and even of the great Creator himself.

vrai, que la beauté des fleurs ne tend qu'à inspirer la joie, et que les plus belles, après bien des épreuves, ne se sont trouvées propres qu'à repaître nos yeux. Aussi la vue en est-elle si touchante, et le pouvoir si sûr, que la plupart des arts, qui veulent plaire, ne croient jamais mieux réussir, qu'en empruntant leur secours. La sculpture les imite dans ses ornemens les plus légers, l'architecture embellit souvent de feuillages et des festons les colonnes et les faces trop nues de ses édifices, &c." Tom. ii. p. 9.

“ These

“ These are the haunts of meditation ; these
 The scenes where ancient bards th’ inspiring breath
 Ecstatic felt ; and, from the world retir’d,
 Convers’d with angels, and immortal forms,
 On gracious errands sent ^b. ”——

The principles of Botany are sufficiently regular, to give it the form and precision of a science. And yet the lover of Botany should not rest satisfied with reading books upon the subject, or looking at engravings of plants. Linnæus, Curtis, and Withering, are authors whose works may be studied to great advantage, and the information they convey ought to be confirmed and enlarged by conversation with experienced Botanists. To range the country in search of plants, and examine their correspondence when they are found, with their descriptions, is a source of the highest gratification which the science can bestow ; as it proves the truth of the principles upon which it depends.

The botanist follows nature into her most retired abodes, and views her in her simple taste, and native majesty. He remarks some of her productions disfigured by cultivation in gardens, where amid all the varieties of the apple and the pear, however distinguished by their colour, size, and taste, he observes, that there is but one original species of each, and that they have respectively but one radical character. By culture, the stamina of plants

^b. Thomson’s Summer.

may

may be converted into petals, and thus form what are called *double flowers*. These, by farther cultivation, may be converted into *proliferous* flowers, or one growing on another, as is sometimes seen in the daisy, ranunculus, and rose. He beholds the wonderful prodigality of nature, even in the common daisy, which consists of more than two hundred flowers, each including its respective corolla, stamina, pistil, and seed, as perfectly formed as those of a complete lily, or hyacinth. And he sees this diversity fully illustrated in the different sorts of grass, a term which, although it commonly conveys only one notion to the vulgar mind, and one object to the undiscerning eye, consists of five hundred different species, each formed with infinite beauty and variety. From others he particularly distinguishes the elegant *briza media*, or *middle quaking grass*, so common in the fields, and so remarkable for its delicate hair-like stem, trembling at every breeze; the *Anthoxanthum odoratum*, or *sweet scented spring grass*, which gives its fragrance to the new-mown hay; and the *Stipa pennata*, or *soft feather grass*, with its waving plumes resembling the long feathers of the bird of paradise. The botanist enjoys a pleasing and innocent amusement, which makes every walk and ride peculiarly interesting in the most delightful season of the year. Whether he explores the low meadows, or climbs the lofty mountains; whether he penetrates into the thick woods, or traverses the open plains, he finds numerous subjects for his researches,

researches, adapted to the various nature of the soils; and while he pursues his favourite science, and provides stores for his *Hortus ficcus*, he contributes to the stock of his health and spirits, and confirms his love of rural scenes and occupations.

CHAPTER VI.

The Mineral Kingdom.

THE active curiosity of man urges him to contemplate nature even in her meanest productions, and to pursue her into her most secret recesses. After he has surveyed the wonders of the animal and vegetable kingdoms, he is led to examine the ruder and less organized parts of the creation; and from considering the symmetry and mechanism of the several bodies presented to his view, he proceeds to inquire of what materials they are composed. Hence have resulted the sciences of mineralogy and chemistry. Mineralogy is a science of which the object is to describe and arrange inorganic bodies, that is, all bodies which belong to our globe, except animal and vegetable substances. The business of this science must therefore consist, 1. in describing the different appearances and characters of minerals with accuracy and precision. 2. In arranging and classifying the several minerals according to the most obvious relations which a clear and comprehensive description may suggest.

By a system founded upon these two processes, the mineralogist is enabled not only to refer every substance which falls in his way to its proper genus

and species, but also to distinguish it by its particular name^c.

It must be admitted, however, that bare mineralogy is a science of very limited utility. To make it essentially conducive to the service of man, we must call in the aid of chemical analysis, by which the simple substances which enter into the composition of metals, are detected and exhibited in a separate state, and the laws of their combination laid open to view. Thus we shall be able to apply the knowledge of inorganic nature to the improvement of almost every art and manufacture.

Avicenna, a writer of the eleventh century, divided minerals into *four* classes. The first class includes all the minerals which are chiefly or entirely composed of earths, such as the oriental ruby, the quartz, felspar, emerald, &c.; the second includes all the combinations of acids and alkalies which occur in the mineral kingdom, such as nitrat of potash, or salt-petre; muriat of soda, or common salt; and muriat of ammonia, or sal ammoniacum. The third includes those minerals which are capable of combustion, such as sulphur, pyrites, bitumen, coals, and amber. The fourth includes

^c Nearly the whole of the following articles on Mineralogy and Chemistry are taken from the Supplement to the Encyclopædia Britannica, and from Imison's Elements. I am likewise indebted to a very acute and scientific friend for some valuable corrections and additions.

the minerals which are composed chiefly of metals, such as ores of gold, platinum, silver, &c.

The progress which, within the last twenty years, has been made in the art of analysing minerals, to ascertain their component parts, is truly astonishing. For the improvement of this art the world is principally indebted to Scheele, Margraff, Bergman, Klaproth, and Kirwan.

As most of the substances of which mineralogy treats have been applied either to aid the mechanical operations of mankind, as iron, stones, and clay; or for ornament and luxury, as gold, diamonds, and marble, traces of its cultivation may be found in the most remote times. It remained, however, for the philosophical spirit of the last century to give it the precision and regularity of a science, and to range minerals in their respective classes, according to their external, or chemical properties.

From this short account it is evident, that a further pursuit of this science would lead us into a detailed system, in which a bare enumeration of the several varieties of minerals would far exceed the plan of the present work. We shall therefore proceed to

Chemistry.

This word, according to the most probably etymology, is derived from an Arabic term, signifying

to *conceal*; and may have referred to the profound secrecy observed in the operations of the Alchemists. These persons laid claim to the art of changing one metal into another, and chemistry was, on that account, long held in contempt by the more intelligent and scientific part of the world. The Alchemists attempted to change the baser metals into gold, and to find out an elixir for the prolonging human life to a great extent. Paracelsus, who lived in the sixteenth century, pretended that he was in possession of both these inestimable secrets; but as he died at the age of 47 years, he proved that his claim to one of them at least was not well founded. Fortunately for science, and the general interests of mankind, chemistry is now no longer confined to the credulous or the avaricious experimentalists; it has been for many years cultivated by men of liberal minds, actuated by a true spirit of philosophical curiosity. In consequence of the important discoveries made by Stahl, Priestley, Lavoisier, Kirwan, and Black, &c. &c. this science has been wonderfully improved, and it has been found necessary to discard the unmeaning and ill-constructed terms formerly used, and to compose a new nomenclature on regular principles. This was effected in France by De Morveau, with the assistance of Lavoisier, Berthollet, and De Fourcroy, in 1787; and this language is found to be so useful in facilitating the knowledge of chemistry, that it is now generally adopted.

Before

Before we proceed to lay before the reader the very contracted account of chemical facts, and of natural substances chemically considered, which alone the assigned limits of this work will permit us to attempt, it will be proper to make him acquainted with such technical terms as most frequently occur, and for which, consistently with either brevity or perspicuity, no others can be substituted.

1. *Substance*, or *body*, denotes any existing matter, whether solid, fluid, or aëriiform.
2. *Simple* substances are such as have not hitherto been decomposed: many of which may possibly be real compounds; but, till this has been actually demonstrated, all their component parts are presumed to be homogeneous.
3. *Attraction* is a reciprocal disposition between bodies, or the particles of bodies, to draw nearer to each other.
4. *Cohesion* is a disposition of the particles of a body to resist any force which tends to separate them from each other.
5. *Repulsion* is a disposition of bodies, or particles, to recede from each other.
6. *Affinity* is a mutual disposition, in the particles of different bodies, to intermix and become blended in a uniform mass.
7. *Combination* is an intimate and uniform blending of the particles of two or more bodies brought into contact with each other, consequent upon affinity.

8. *Fusion* is the change of bodies from a solid to a fluid state by the mere addition of heat, or caloric.
9. *Solution* is a separation of the particles of a solid body, effected by the action of those of a fluid, with which it is in contact. In cases of solution, the *solvent* and the body dissolved in it, appear as one homogeneous fluid: and it is worthy of notice, that all solutions are transparent; whereas *mixtures*, where integrant parts of a solid are only *suspended* in a fluid, are always opaque.
10. *Saturation* is that state of a solution, wherein the solvent fluid has taken up the utmost proportion of a solid which it is capable of dissolving. This happens when the attracting power in the particles of the fluid, tending to disunite those of the solid, is exactly balanced by the tendency of the latter to cohere together: and the two bodies are then said to be mutually saturated with each other.
11. *Precipitation* is the effect which follows when some part of the fluid, in a saturated solution, is by any means withdrawn. In this case, a correspondent proportion of the particles of the solid immediately coheres, or becomes reunited in a solid form; though sometimes in masses so minute as to continue suspended in the fluid.
12. *Crystallization* is a mode of reunion of the particles of a solid from a state of solution or fusion,

fusion, in which they assume certain regular figures.

13. *Gas* is a term applied to all aëriform substances, whether permanently such, or made so by the application of heat.

Chemistry is a science, the object of which is to ascertain the ingredients of which bodies are composed, to examine the nature of those ingredients, the manner in which they combine, and the properties resulting from their combination.

As an *art*, it is of very high antiquity, for many of the most important branches of manufactures could not have been conducted without at least some knowledge of chemical combinations. As a *science*, it can hardly be dated farther back than the middle of the seventeenth century; but since that time it has advanced with a rapidity altogether unequalled in the annals of philosophy. The foundation of it was laid by Sir Isaac Newton, and since his time many eminent persons have employed themselves either occasionally or professedly, in raising and adorning the superstructure. Its progress has been so rapid, that those writers who undertook to describe the state of chemistry only ten years ago, now find themselves under the necessity of retracing the very elements of the science.

Indeed, if we consider the importance of chemistry, we shall not be so much surprised at the

ardour with which it has been cultivated. As a science, it is intimately connected with the phenomena of nature; the causes of rain, snow, dew, wind, earthquakes; even the changes of the seasons can never be explored with any chance of success, while we are ignorant of chemistry; and the vegetation of plants, and some of the most important functions of animals, have received all their illustrations from the same source. No study can give us more exalted ideas of the wisdom and goodness of the GREAT FIRST CAUSE than this, which shews us every where the most astonishing effects produced by the most simple though adequate means, and displays to our view the great care which has every where been taken to secure the comfort and happiness of every living creature. As an art, it is intimately connected with all our manufactures. The glass-blower, the potter, the smith, and every other worker in metals; the tanner, the soap-maker, the dyer, the bleacher, are really practical chemists; and the most essential improvements have been introduced into all these arts by the progress which chemistry has made as a science. Agriculture can only be improved rationally, and certainly, by calling in the assistance of chemistry; and the advantages which medicine has derived from the same source are too obvious to be pointed out.

In the best system of this comprehensive science, it is usual to begin by an account of the simplest bodies, and proceed gradually to those which are

3

more

more compound. By *simple bodies*, we do not mean what the ancient philosophers called the *elements of bodies*, but merely substances, which have not yet been decomposed. Very possibly the bodies, which we reckon simple, may in reality be compounds; but till this has actually been proved, we have no right to suppose it. Were we acquainted with all the elements of bodies, and of all the combinations of which these elements are capable, the science of chemistry would be as perfect as possible, but at present this is very far from being the case.

A course of chemical study may therefore be conveniently distributed into four parts. The first relates to those bodies which are at present considered as simple; the second, to those bodies which are formed by the union of two simple bodies, and which, for want of a better, may be called compound bodies of the first order; the third relates to those bodies which are formed by the union of two compound bodies; and the fourth, to bodies as they are presented to us by nature in the animal, vegetable, and mineral kingdoms.

Part I. Simple Bodies.

All bodies at present accounted simple, because they have never been decomposed, may be reduced into six classes.

- | | | |
|-------------------------|------------|-------------|
| 1. Oxygen. | 3. Metals. | 5. Caloric. |
| 2. Simple combustibles, | 4. Earths. | 6. Light. |

1. *Oxygen*. This very pure, subtle, and elastic substance takes its name from two Greek words, which signify to *produce* what is *acid*, because one of its general properties is to form various acids by combining with different substances, which are called the bases of the several acids. If the fresh branches or leaves of plants are placed under a glass vessel filled with water, inverted in that fluid, and then exposed to the sun, they emit bubbles of air, which collect at the top of the vessel, and are found on trial to be oxygen gas, or oxygen in an aëriform state; that is, combined, as it is supposed, with a large proportion of caloric and light. The same kind of air may be more copiously obtained by heating nitre in close vessels, or by distilling the black oxide, or calx of a mineral called manganese, with sulphuric acid, or oil of vitriol. This gas is absorbed by combustible bodies, and converts them into acids. It is essential to the process of combustion, uniting itself always with bodies that burn, increasing their weight, and changing their properties. It is essentially necessary for respiration, as no breathing animal can live in any air which does not contain some proportion of oxygen gas.

2. Simple combustibles are substances capable of combustion or burning. They are only five in number: sulphur, phosphorus, carbon, hydrogen, and azot.

Sulphur is a hard brittle substance, commonly yellow, without any smell, and of a weak taste. It

It is found both pure and in a mixed state. By combustion it may be converted into an acid: this discovery was made by Stahl, the celebrated chemist.

Phosphorus is never met with pure in nature. It is commonly united to oxygen in the state of phosphoric acid, which is found in great plenty in animal, vegetable, and mineral substances. It is luminous in the dark, at the common temperature of the atmosphere. It takes fire spontaneously, and burns rapidly in the open air, at 122 of Fahrenheit's thermometer, with a brilliant white flame, and is converted into phosphoric acid gas. The lowness of the temperature at which phosphorus burns, and exhibits a luminous appearance, renders it by far the most remarkable substance of the combustible class, and has frequently enabled those who were acquainted with its properties to strike the ignorant with surprise and terror.

Carbon. If a piece of wood be put into a crucible well covered with sand, and kept red hot for some time, it is converted into a black shining brittle substance, without either taste or smell, well known by the name of charcoal. This substance has always mixed with it several earthy and saline particles; when freed from them it is called carbon. Carbon is susceptible of crystallization: in that state it is called *diamond*. The figure of the diamond varies considerably; but most commonly it is an hexagonal prism terminated by a six-sided

sided pyramid. It is one of the hardest substances in nature, and as it is not affected by a considerable heat, it was for many ages considered as incombustible. Sir Isaac Newton observing that combustible substances refracted light more powerfully than other bodies, and that the diamond possessed this property in great perfection, suspected that it was capable of combustion. This conjecture was verified in 1694, by the Academicians of Florence, in the presence of Cosmo III. Grand Duke of Tuscany. By means of a burning glass they destroyed several diamonds. Mr. Tennant has since demonstrated, by a very curious experiment, that diamonds consist entirely of carbon.

Hydrogen is so called from two Greek words, which signify to *produce water*, because it enters into the composition of water. It is also known by the name of inflammable air. Hydrogen in a state of gas, that is, combined with caloric and light, is procured by pouring a quantity of sulphuric acid, diluted with twice its weight of water, upon iron filings. All combustion immediately ceases on plunging the burning substance into this gas. Animals obliged to breathe in it, die almost instantaneously. It is found native in muddy waters and marshes, and the bowels of animals. It is exhaled from all animals and vegetables in a state of putrefaction. It is often found in great abundance in mines and coal-pits, where it is sometimes mixed with atmospheric air. If a lighted candle be brought into this mixture, it explodes, and produces the most dreadful effects: it is called by miners, the *fire-damp*.

damp. One of the most remarkable properties of hydrogen gas is its extreme lightness, its specific gravity being to that of atmospheric air as 1 to 12. The use made of this property in the popular experiment of causing balloons to ascend into the air, is very generally known.

Water was formerly considered as a simple element, because no one had ever been able to decompose it; it was discovered, however, by Mr. Cavendish, in 1781, to be composed of hydrogen and oxygen. Their union takes place when a mixture of the two gasses in a close vessel is set on fire, by means of the electric spark. As the combustion goes on, water is deposited in the internal surface of the vessel; the quantity of the water gradually increases, and it unites itself into large drops, which run down the sides of the vessel, and are collected in the bottom of it. Lavoisier proved this by experiment, in the presence of some members of the Academy of Sciences. He ascertained, that 85 parts by weight of oxygen, and 15 parts of hydrogen, are required to compose 100 parts of water.

Azot is a species of gas so called from two Greek words which signify *no life*, because no animals can live in azotic gas. If they are obliged to breathe in it, they instantly drop down dead. It is procured by pouring diluted nitrous acid on muscular flesh, and applying a heat of 100 Fahrenheit.

3. *Metals.* Metals may be considered as the great instruments of all our improvements: without them many of the arts and sciences could hardly have existed. In chemistry they have always filled a very considerable place; at one period, indeed, the whole science was confined to them, and it may be said to have been indebted for its existence to a rage for making and transmuting metals.

The characters by which metals are distinguished, are a brilliancy which pervades every part of them, called the metallic lustre; opacity, fusibility, a specific gravity superior to that of any other bodies; a capacity of hardness, elasticity, malleability, and ductility; but in some metals many of these properties are wanting. *Malleability* is one of the most important properties of metals, by which is meant their being capable of extension without any perceptible disunion of their parts, under the stroke of a hammer. This property enables us to give metals any form we think proper, and thus renders it easy to convert them into various useful instruments. Heat increases this property very considerably. *Ductility* is the property which some metals possess of being drawn out into wire, by being forced through holes of various diameters. This property appears to depend, in a great measure, upon their *tenacity*, that is, upon the degree of power they possess when drawn into wire, of resisting, without breaking, the action of a weight suspended at one extremity of the wire.

Metals

Metals are seldom found in the earth in a pure state, but generally combined with oxygen, sulphur, arsenic, and the acids. In their different states of combination, they are said to be *mineralized*, and they are called *ores*. These ores are commonly found in mountainous countries, chiefly in crevices of rocks, forming veins of ore. The cavities made in the earth, in order to extract these ores, are called *mines*.

The metallic substances at present known are,

1 Gold,	13 Tellurium,
2 Platinum,	14 Arsenic,
3 Silver,	15 Cobalt,
4 Mercury,	16 Manganese,
5 Copper,	17 Tungsten,
6 Iron,	18 Molybdenum,
7 Tin,	19 Uranium,
8 Lead,	20 Titanium,
9 Nickel,	21 Chromium,
10 Zinc,	22 Columbium,
11 Bismuth,	23 Tantalum.
12 Antimony,	

Of these the first ten are malleable, the four next are brittle, and easily fused, and the rest are brittle, and are fused with difficulty. When oxygen combines with metals, they acquire new properties; and this combination, which takes place in greater or less degrees, is called an *oxide*. Metals are excellent conductors of the electric fluid; they also possess the power of producing a change on that fluid, on which

which the phenomena produced by *Galvanism* depend^d.

1. *Gold* is the most perfect, tenacious, ductile, and unchangeable of all metals. It is of an orange red colour; its lustre is considerable, inferior only to that of platinum, steel, silver, and mercury. Its specific gravity is 19,040. It is so malleable that it may be beaten out into leaves so thin, that one grain of gold will cover $56\frac{1}{4}$ square inches. A gold wire, .078 of an inch in diameter, will support a weight equal to more than 150lbs. without

^d “ These phenomena are produced by two piles composed of different metals, alternately placed; one for instance *zinc*, another *silver*, with pieces of leather interposed between each metallic disk, moistened with a solution of muriate of ammoniac; even water will answer, but in a less degree. From each of these two piles a wire being passed, several curious phenomena result. When an animal is placed between the wires, and thus connects the two piles, a shock similar to that from a charged electric jar is felt: when placed on each side of the tongue, a pricking sensation, and somewhat of an acid taste is experienced; when the head forms part of the circuit, the wires being placed in the ears, a crackling sound is heard; a flash of light appears if the eyes are brought in its course; and excessive pain is felt if its influence is directed on a surface where the skin is removed. These and other extraordinary effects were first noticed by Volta. Numerous experiments with different metals, &c. are recited in Nicholson’s Philosophical Journal by the learned editor, Mr. Carlisle, Mr. Cruickshank, Mr. Davy, and Major Haldane. No satisfactory theory has, however, yet been published respecting these curious results from the apparent combination of electric and chemical powers.” Parkinson’s Chemical Pocket Book, p. 132.

breaking.

breaking. It melts at 32° of Wedgwood's pyrometer; when melted, it assumes a bright bluish green colour. It combines readily with a great number of metals, and forms various alloys. Its oxides are two, the one purple and violet, and the other yellow.

2. *Platinum* has hitherto been found only in Peru, and in the mine of Santa Fe, near Carthagena, among gold ores. It was unknown in Europe till some of it was brought from Jamaica by Mr. Wood, in 1741. When pure, it is of a white colour like silver, but not so bright. Its specific gravity is 23,000, so that it is by far the heaviest body known. It is next to gold in malleability and ductility. It cannot be melted in any quantity at least, by the strongest artificial heat, nor can it be combined with oxygen.

3. *Silver* is of a pure white. Its specific gravity is 10,478. It is malleable, ductile, and laminable in a high degree, though inferior to gold. It is so tenacious, that a silver wire of one-tenth of an inch will support 270 pounds. If kept melted for a long time in an open vessel, it gradually attracts the oxygen from the atmosphere. It has two oxides, which are grey and white.

4. *Mercury*, called likewise quicksilver, is white. It is very brilliant, and when its surface is not tarnished, it makes a clear mirror. Its specific gravity is 13,568. At the common temperature of the atmosphere

atmosphere it is always fluid. In this respect it differs from all other known metals. But it becomes solid when exposed to a degree of cold equal to 39° . The freezing of mercury was accidentally discovered by the academicians of Peterf-burg, in 1759. Solid mercury may be subjected to the blows of a hammer, and may be extended without breaking. Mercury combines with the greater number of metals. These combinations are called *amalgams*. On this property is founded the art of gilding. Mercury is likewise employed in painting, in making looking glasses, &c. There are four oxides of it at present known; the three first are black, white, and red.

5. *Copper* appears to have been more early known than any other metal, except gold and silver. During the Trojan war, we find the heroes had no armour, or weapons, but such as were made of bronze, that is, a mixture of copper and tin. Copper is of a muddy red colour, with a shade of yellow, and is malleable, flexible, and ductile; though inferior in these respects to silver. Its specific gravity is from 7,780 to 8,584. It has two oxides, which are black and yellow. It mixes with most of the metals.

6. *Iron* is the most useful of all metals, and may be called the instrument of civilization, as the use of it constitutes one great distinction between the rude and the polished nations of the world. It is very plentiful, otherwise it would be dearer than gold.

gold. One of the most remarkable of its properties is its obedience to the magnet. It is highly tenacious ; when formed into wire, one-tenth of an inch in diameter, it will support 500lb. without breaking, while a wire of lead of the same diameter, can only support about 29lbs. It has two oxides, the one is common rust, or brown, or red oxide of iron ; and the other is black, containing the smallest proportion of oxygen. Iron is very ductile, and is capable of being *welded*, that is, of being made to unite under the hammer, at a red heat. It is difficult to be fused, and for that state requires a heat equal to 130° of Wedgwood. When iron ore is fused in large furnaces, it is made to flow into a kind of mould formed in sand. This first product, which is exceedingly brittle, and not malleable, is called *cast iron*. In this state, by pouring it into different kinds of moulds, it is formed into stoves, pipes, cannon, and other articles. To render iron malleable, it must be freed from the carbon and oxygen, which it contains. For this purpose it is fused, and kept in that state for some time, stirring and kneading it all the while ; by this process, the carbon and oxygen unite, and are expelled in the form of carbonic acid gas. It is then subjected to the action of large hammers, or the pressure of rollers, by which the remaining oxide of iron, and other impurities, are forced out. The iron is then no longer crystallized, or granular in its texture ; it is fibrous and ductile, and in a much purer state. It is also capable of being welded, and worked

by hammers into any form: it is then called *forged*, or *wrought iron*.

Iron is capable of being brought in to a third state, which is that of steel. It is converted into steel by being kept for some hours in a strong red heat surrounded with powdered charcoal in a covered crucible. Steel is distinguished from iron by many properties, particularly as it is capable of the process called *tempering*; which is effected by plunging it suddenly into cold water, at certain degrees of heat, ascertained by observing the colours of the metal as it cools. By this process it is brought to any required degree of hardness, even to the brittleness of glass, according to the various mechanical purposes to which the artist proposes to apply it. At the highest degree of temper, it resists the file, cuts glass, affords sparks with flint, and retains the magnetic virtue for any length of time.

7. *Tin* is of a fine white colour, like silver, and when fresh its brilliancy is very great. Its specific gravity is 7,291. It is the lightest of all metals, is very ductile, but tenacious in a small degree. It is very flexible, and crackles when bended. It has two oxides, yellow and white. It may be combined with most other metals; and some of its alloys are much used.

8. *Lead* is of a bluish white colour; when first melted it is very bright; when taken internally, it acts

acts as a poison. Its specific gravity is 11,352. It is the least sonorous, tenacious, and elastic of metals. It does not become harder by hammering, as is the case with other metals, but it is the most fusible of all. Four of its oxides are at present known, which are grey, yellow, red, and brown. It is capable of combination with most other metals. Thin plates of lead, exposed to the vapour of warm vinegar, are gradually corroded, and converted into a heavy white powder, used as paint, and called *white lead*. Mafficot ground to a fine powder, put into a furnace, and constantly stirred while the flame of the coals plays against its surface, is converted into a beautiful red powder, called *red lead*, which is much used as a paint, and for other purposes.

9. *Nickel* is found in different parts of Germany. When perfectly pure, it is of a fine white colour, resembling silver. Its specific gravity is 9. It is more malleable than iron. It is attracted by the magnet as strongly as iron, and may be converted into a magnet. Heated in an open vessel, it combines with oxygen, and assumes a green colour.

10. *Zinc* has never been found in Europe in a pure state; when extracted from its ore, it is of a brilliant white colour, with a shade of blue, and is composed of a number of thin plates adhering together. Its specific gravity is 7,190. It forms the middle between the malleable and the brittle metals. It is not ductile, and its tenacity has not

been ascertained. Two of its oxides, the grey and the white, are at present known. It combines with almost all other metals, and some of its alloys are of great use. When it does not exceed a fourth part of the copper with which it is united, the alloy is known by the name of *brass*. When the alloy contains three parts of zinc, and four of copper, it is then called *pinchbeck*, or *Prince Rupert's metal*.

England may boast of producing many useful metals. Tin is an article in which this country, from the time of the Phenicians, has always had the pre-eminence. The country of Cornwall is said to produce more than all the world besides. Our lead ore is richer than in other countries, runs more fluently in the fire, requires less trouble and expence in working, and is when wrought very fine and ductile. Our black lead, or *wadd*, found in Cumberland, is a mineral of great use and value in several branches of trade and arts. Copper and iron are also found here in great plenty, and several ores of these metals, particularly in Anglesey, have of late been discovered, and brought into use, which were unknown before the recent improvements in chemistry.

For an account of the other thirteen metals, which are deficient in some properties of those described, see Thomson's Chemistry, vol. i. p. 191, &c. and Parkinson's Chemical Pocket Book, p. 107, &c.

4. *Earths.*

4. *Earths*. When we examine earths chemically, we find that all the earth and stones which we tread under our feet, or of which the most massy rocks are formed, as well as the numerous specimens which adorn the cabinets of the curious, however varied in their external features, are composed of a very few simple or elementary earths ; that is,

1 Barytes,

6 Yttria,

2 Strontian,

7 Glucina,

3 Lime,

8 Zirconia,

4 Magnesia,

9 Silica.

5 Alumina,

Every body which possesses the following properties, is an earth. 1. Insolubility in water, either total or nearly so : certainly absolute when combined with carbonic acid. 2. Little or no taste, or smell ; at least when combined with carbonic acid. 3. Incombustibility, and incapacity while pure, of being altered by the fire. 4. A specific gravity not exceeding 4, 9. 5. A capacity when pure, of assuming the form of a white powder.

5. *Caloric*. By this name is distinguished the cause of heat, or that exquisitely elastic fluid which produces it. When bodies become hot, or, which is the same thing, when caloric enters into them, they expand in every direction, and this expansion is proportioned to the quantity of caloric. It does not, however, dilate all substances equally ; and we are still ignorant of the law which it obeys.

Tables have been constructed of the degrees of expansion of different bodies, such as water, mercury, glass, air, &c. at different temperatures, and of the specific caloric of various bodies compared with that of water. Specific and caloric are terms used to denote the quantity of caloric requisite to heat any certain body to a given temperature. The terms, therefore, are properly comparative: for example, the quantity necessary to heat water one degree, is found to heat mercury 3, 16°. A close resemblance is observed to exist between caloric and electric matter.

6. *Light.* Light is considered as a substance composed of small particles, moving in straight lines from luminous bodies with inconceivable rapidity. The effects of light upon vegetation are well known: many flowers, as we have before observed, follow the course of the sun, and plants that grow in houses make an effort to get at the light. The more plants are exposed to the light, the more colours they acquire. The parts of fish exposed to it, such as the back, fins, &c. are coloured, but the belly, which is deprived of light, is white in them all. All metallic oxides, and especially those of gold, silver, mercury, and lead, become of a deeper colour by being exposed to the sun. Many bodies, if exposed to the light, combine with it, and emit it again under certain circumstances. These are called solar phosphori, and have been prepared by many chemists. Many animal and vegetable substances seem to possess this

this phosphorus, such as the glow-worm, dead fish, rotten sea-weeds, and great numbers of insects.

Part II. Compound Bodies.

To bodies composed of two simple substances combined together, is given the name of compound bodies of the first order. They may be reduced into five classes.

- | | |
|-------------|--------------|
| 1. Water, | 4. Alkalies, |
| 2. Alcohol, | 5. Acids. |
| 3. Oils, | |

1. *Water* is absolutely necessary for the existence of animals and vegetables. When pure, in which state it can be obtained only by distillation, it is transparent and destitute of colour, taste, or smell. At a temperature below 32 degrees of Fahrenheit, it becomes solid, and is then called ice. When it freezes very slowly, the ice assumes the form of chrystalline needles, crossing each other at different angles. Ice is elastic, and its specific gravity is less than that of water. When water is heated to the temperature of 212° it boils, and is gradually converted into steam. Steam is an invisible fluid like air, but of a less specific gravity. It occupies about 1200 times the space that water does. Its elasticity is so great, that it is capable of bursting the vessels in which it is confined, with the most violent explosions. It is upon this principle

the steam engine has been constructed. The important discovery that water is a compound substance has contributed perhaps more than any other to the advancement of the science of chemistry, by furnishing a key to the explanation of many phenomena, formerly misconceived, or little understood.

2. *Alcohol.* Ardent spirits such as brandy and rum consist almost intirely of three ingredients, water, alcohol or spirits of wine, to which they owe their strength; and a small quantity of a peculiar oil, to which they owe their flavour. Pure alcohol is transparent, of a pleasant smell and a strong, penetrating, and agreeable taste. If set on fire, it burns all away with a blue flame. It is composed of carbon, hydrogen, and oxygen, as was proved by the experiments of Lavoisier.

3. *Oils* are divided into two classes—fixed and volatile. The former are obtained partly from animals, and partly from vegetables, by simple expression, as whale and train oil from the blubber of the whale, and olive oil from the fruit of the olive. Volatile oils, called also essential oils, are all procured from vegetables: they have a strong aromatic smell, and a pungent acrid taste, and are valued on account of their agreeable odour. Some are obtained by expression as oil of bergamot, lemons, and oranges: others by distillation, as oil of peppermint, thyme, &c. As far as experiments have yet been made, they seem to consist of carbon and

and hydrogen, but nothing is known of the proportions of these ingredients.

4. *Alkalies*. Substances possessed of the following properties are so called. 1. Incombustibility. 2. The power of converting vegetable blues into green. 3. A hot caustic taste. 4. A high degree of solubility in water, even when combined with carbonic acid. There are three alkalies, potash, soda and ammonia. The two first are called fixed alkalies, because a violent heat is necessary to volatilize them: the last is called volatile, because it very easily assumes a gaseous form, and is of course dissipated by a very moderate degree of heat.

If a sufficient quantity of wood be burnt to ashes, and these ashes be washed repeatedly with water, till it comes off free from any taste, and if this liquid be filtrated and evaporated to dryness, the substance remaining behind is potash, but combined with certain impurities, from which it cannot be freed but by a more complicated process. Pure potash is so highly disposed to unite with oils, particularly with fat, muscular flesh and other animal substances, that it corrodes and disorganizes them with singular rapidity.

Soda, called also the mineral alkali, greatly resembles potash. It is obtained from the ashes of marine plants. The combination of soda, or potash with oils or fat, forms soap.

5. *Acids*.

5. *Acids.* The following are the properties of acids. 1. When applied to the tongue they excite that sensation which is called sour, or acid. 2. They change the blue colours of vegetables to red. 3. They unite with water in almost any proportion. 4. They combine with all the alkalies, and most of the metallic oxides, and earths, and form with them those compounds which are called neutral salts. Every acid does not possess all these properties, but all possess a sufficient number to distinguish them from other substances.

Lavoisier by a number of accurate experiments proved that several combustible substances when united with oxygen form acids, that a great number of acids contain oxygen, and that when this principle is separated from them, they lose their acid properties. He concluded therefore, that the acidifying principle is oxygen, and that acids are nothing else but combustible substances combined with oxygen, and differing from each other according to the nature of the combustible base. This conclusion has been confirmed by every subsequent observation. The acids at present known amount to about 39, most of which have been examined within the last 30 years.

Part III. Doubly Compound Bodies.

The bodies which consist of combinations of substances called compounds of the first order, and
for

for that reason, we have ventured to call by the abovementioned name, may be reduced to three classes. 1. Soaps. 2. Neutral Salts. 3. Hydrofulphurets.

1. *Soaps.* The compounds into which oils enter without decomposition are called soaps. Soaps are alkaline and acid.

2. *Neutral Salts.* The word salt has been used in chemistry in a very extensive and not very strict sense. Every body which is rapid, easily melted, soluble in water and not combustible has been called a salt. The term of neutral salt signifies any compound formed by the combination of acids and alkalies, earths or metallic oxides. In these compounds, the earth, alkali, or oxide is called the *base*. Each order of salts is denominated after the acid which enters into its composition, and every salt is distinguished by subjoining the name of its base. Thus all the salts, into which sulphuric acid enters, are called *sulphats*, and the salt formed by the combination of sulphuric acid and potash is called *sulphat of potash*.

3. *Hydrofulphurets.* Sulphurated hydrogen gas possesses almost all the properties of acids. It combines with water, and the solution gives a red colour to vegetable blues. It decomposes soaps and fulphurets, and is capable of combining with alkalies, earths and metallic oxides, and of forming compounds, to which Mr. Berthollet who discovered

discovered them, has given the name abovementioned.



Thus may the curiosity of man be gratified by surveying the productions of nature; and thus the farther he extends his researches, the more reason will he find to admire the general economy of created beings. Whatever objects his eyes behold, whether small or great, he will see design and order impressed upon them, in the most conspicuous characters. The stars scattered over the blue vault of heaven, and so numerous as to baffle calculation, whether they shine only to afford us light, or are the suns of other systems, and thus proclaim the extent of Almighty power, cannot fail to strike us with astonishment. The blazing *Comets*, which were the dire prognostics in the opinion of our ancestors of the fall of kings, and the subversion of empires, we are taught by the improvements of philosophy to contemplate with admiration, devoid of terror; and to consider as the abodes of creatures endowed with various powers and faculties. The *Earth* performing her annual and diurnal circuit around the centre of the system, so as to produce a regular change of seasons, and a succession of light and darkness:—the *Ocean* giving to mankind the constant advantages of its tides; and although frequently tempestuous, and sometimes threatening to mix its waves with the clouds and to overflow the earth, yet obeying the invariable laws

laws of its flux and reflux, and never advancing beyond its prescribed bounds:—the *Air*, which from its partial pressure would crush us to the ground, but by the elasticity of its internal resistance forming an exact counterbalance, clearly demonstrate the power, the wisdom, and the benignity of an omnipotent Creator. Time and space, substance and heat, are the vast materials of nature; the wide universe is the sphere, in which they act; and life, activity, and happiness, constitute the end of their operations. The whole race of *Animals* preserved to the present time in the same flourishing state in which they were at first created; the impulse of instinct directing them to wholesome food, to commodious habitations; and to the propagation of their kind; the structure of their frames, suitable to their immediate use; the several tribes of creatures subordinate to each other, conducive in various respects to the good of man; and the abundant provision made for their subsistence, are all evident and incontestible proofs of divine skill, contrivance, and power.

The human race, and all other beings, are formed with such exquisite ingenuity, that man is wholly unable to imitate the most simple fibre, vein, or nerve, much less to construct a hand, or any other organ of contrivance or execution. All living creatures constitute one chain of universal existence, from the beginning to the end of the world. Our own structure, and the formation of all around, above, and beneath us, in the animal, vegetable,

vegetable, and mineral kingdoms, proclaim the operations of an all-wise and all-powerful Being, and the constant agency of his over-ruling Providence^c.

It is thus, we discover the ALMIGHTY CREATOR of all things in his works ! Dark clouds rest upon his hallowed and inaccessible habitation : but the beams of glory, darted from his eternal throne, shine around us on every side. We cannot with our mortal eyes behold his presence ; we cannot even look steadfastly upon the orb of day, his glorious emblem : but we can in every part of the globe trace the plain vestiges of his power, wisdom, and benevolence. Wherever a plant takes root and flourishes, wherever an animal appears, there is he plainly discoverable. In the depths of the Pacific Ocean, in the boundless wilds of Africa, upon the snowy summits of the Alps, and along the vast range of the stupendous Andes, he may be traced. His power and wisdom are evident in the formation of the fragrant rose, and the towering oak ; in the

• ————— Some within a finer mould
Are wrought, and temper'd with a purer flame.
To these the Sire omnipotent unfolds
The world's harmonious volume, there to read
The transcript of himself. On every part
They trace the bright impressions of his hand,
In earth, or air, the meadow's purple stores,
The moon's mild radiance, or the virgin's form
Blooming with rosy smiles. —————

Akenfide's Pleasures of the Imagination.

gentle

gentle lamb, and the roaring lion; in the melodious nightingale, and the rapacious vulture. The exquisite construction of their respective parts prove the unskilfulness of men, even in their most elaborate productions, and demonstrates the admirable invention of their Creator. Compared with his works, how small, imperfect, and trifling are all the labours of art! since all *he* does is marked with consummate skill and excellence. He has concealed from our strictest and most persevering examination a knowledge of their essence; and as that knowledge would neither minister more abundantly to our comforts, nor increase our happiness, his benevolence is displayed in what he denies, as well as in what he bestows. In his hands matter is supple, and prompt to receive every impression. At his command it is formed into beings, the most strongly marked by character, and the most varied by form—from the stern lineaments and shaggy covering of the lion, to the soft plumage and delicate shape of the dove. He has impressed a never failing symmetry upon every created being of the same species, and endowed it with the same properties; and this unchanging execution and perpetuity of his original design, proves to us the undeviating regularity of his plans. The same principles of fecundity produce each particular kind of animals; and the same modes of preservation continue, as at the moment when by his creative voice they were first called into existence. The parents and the most distant offspring of animals are the same: preserving invariably through their successive generations

nerations the most exact resemblance of their original stock. The different kinds still continue unaltered in proportions, features, and strength, and they flourish in full youth, bloom, and vigour; and these are qualities not interrupted by the decay, nor weakened by the old age of their species^f. He has diversified the earth with hills and valleys, woods and plains, intersected it with rivers, lakes, and seas, affording to the eyes of man the most enchanting prospects, and the most beneficial means to supply the wants of his nature, and guard him against the inclemency of the seasons. He has clothed the surface of the earth with the refreshing verdure of grass, and the thick forests of stately trees; he has enriched it with such numerous vegetables, as are more immediately conducive to the sustenance of man; and has stored its bowels with those metals, which excite his industry, and minister to his accommodation. Foreseeing the adaptation of many of his productions to the support and the comfort of human life, he has provided them in abundance; his bounty to all creatures is like the mighty ocean, flowing in perennial streams for every age:—it is open to every eye, its treasures are enjoyed wherever they are sought, but its sources are unknown and unfathomable.

^f Ergo ipsas quamvis angusti terminus ævi

Excipiat——

At Genus immortale manet, multosque per annos,

Stat fortuna domus, & avi numerantur avorum.

Virg. Georg. iv. l. 206.

Our

Our natural desire of acquiring knowledge is ever attended with a consciousness of our ignorance; and our pride is repressed at every step we take by the limited nature of our faculties, and the tardy progress of our utmost diligence. The history of nature indeed, as far as our imperfect researches can extend to her general economy, and laws, is the history of providential goodness to all created beings: as we enlarge our acquaintance with it, the more do we understand our peculiar obligations, as creatures endued with reason, and enlightened by the revelation of the divine will. Our knowledge, therefore, is only valuable as it leads to devotion, gratitude, and obedience, which constitute the due homage of wise and dependent beings^s.

§ “To consider God as governor of the world is the light wherein we ordinarily behold him, that which gives us the clearest conception we can entertain of him, which best answers all useful purposes, and has this peculiar advantage, that it represents his *goodness*, the attribute we are most interested with, in the fairest colours, as attentive to produce all the happiness possible for his creatures in the nature and constitution of things. This, when well inculcated, satisfies the minds of the vulgar, and would satisfy those of the *speculative* too, if they would abstain from idle questions concerning Creation, and forbear to ask why things are not otherwise constituted, so that more happiness might have been produced, than is now possible. For if we survey so much of nature as lies within the reach of our observation and reason, we shall find there is a balance of good sufficient to content any reasonable person.”

Search's Light of Nature, vol. ii. p. 274.

By looking back through the long series of past ages, we ascend to the developement of the creative power of God, as the primary cause of all existence; and we observe the proofs of omnipotence again manifested in the most tremendous manner, when at the divine command the foundations of the deep were broken up, and the guilty race of men, except righteous Noah and his family, were overwhelmed in the general deluge; of which the monuments are spread over the whole globe, to perpetuate the remembrance of sin and its punishment. By looking around us, and surveying the wide prospects of nature, we see the Almighty supreme in majesty, love, and mercy. Led by the light of science to survey the starry heavens, we behold him exercising these attributes in other worlds; and communicating the blessings of existence and providential care to other systems of creation.

Thus extending its eager views to the contemplation of objects so vast, so various, and so magnificent, our souls feel the narrowness of their faculties to comprehend the divine operations, and are overwhelmed in the contemplation of infinite power and transcendent glory; which only the bright orders of celestial beings—the angels and archangels, who encompass the eternal throne of God, can adequately conceive, or duly celebrate.

The pleasures which arise from tracing this power and goodness will doubtless become incomparably more exalted and refined, when the faithful followers

lowers of the Redeemer of mankind shall be admitted to the realms of heaven and glory, and our souls, disengaged from all earthly impediments, shall ascend above the stars, and resemble those angelic beings;—when the most accurate, most enlarged, and most interesting knowledge will form a part of our eternal happiness;—when the restless mind of man shall no longer form wild and inconsistent theories to account for the formation of the globe; *but the volume of universal nature shall be unfolded to his astonished eyes*;—when the laws, which regulate all orders of created beings, shall be fully unfolded and clearly understood, and man shall learn the true constitution of the world he now inhabits, from the time when discordant matter first obeyed the word of the Almighty, and was called into harmony and order, to the last awful period of its existence!

CLASS THE FIFTH.

POLITE LITERATURE AND ELEGANT ARTS.

CHAPTER I.

Taste.

THE abuse of words is a very frequent and just subject of complaint among those who endeavour to communicate knowledge. Some words are used in a manner so vague and fluctuating as to convey no precise meaning. This remark cannot be applied to any word with more propriety than to TASTE; for as it passes current in common language, sometimes it denotes singularity, or fastidious refinement; and is often employed to express any predilection for objects, which the most capricious mind can form, without the least reference to their utility, ornament, or beauty.

In order therefore to give a more exact idea of a word, which must necessarily occur very often in the course of this and the following chapter, it is necessary to premise, that by Taste is intended to be understood, *the power which the mind possesses,*
of

of relishing the beauties found in the works of nature and art.

*Get in a
person with
active
Bravo*

“ Say what is Taste, but the internal powers
Active and strong, and feelingly alive
To each fine impulse? a discerning sense
Of decent and sublime, with quick disgust
From things deform’d^h. ”

As we consider Taste as a general principle, natural to every person who possesses judgment and sensibility in a competent degree; we cannot suppose that it is confined to the polished part of mankind. On the contrary, it is as common to a rude state of society, as it is to an early period of life. The wild tribes, who inhabit the interior parts of America, contemplate their extensive lakes the Ohio and the Ontario with astonishment, and gaze upon the starry heavens with delight. There is a majesty and a vastness in these objects of nature, which affect the soul through the medium of the eye, and impress it with great ideas. The same savages decorate themselves with shells and feathers of various colours, compose songs of love and war in rude numbers, and adapt them to the animating sounds of different instruments of music. They take a pleasure in tracing the forms of the objects with which they are most acquainted. Governor Phillips, in his excursions in Botany Bay, saw the figures of animals, shields, weapons of war, and even of men carved upon the rocks by the natives. These figures were rough, but completely

^h Akenfide's Pleasures of the Imagination.

expressed the objects they were intended to represent. On the top of a hill the figure of a man in the attitude of a dancer, was executed in a still superior manner. With similar indications of pleasure children discover a fondness for the beauties of nature, and for all kinds of imitation; the most imperfect drawings and figures of animals, bright colours, and every species of novelty give them great delight; and they listen with admiration to the singing of birds, or the murmur of a cascade. So extensive are the general perceptions of beauty, harmony, and imitation, that they seem as natural to the human mind, as the love of justice and truth.

Among the various productions of nature, which give universal pleasure, are those of particular *Forms* and *Colours*. The figures of natural objects are not defined by those straight lines which are found best adapted to convenience in many works of art, and are the subjects of speculation in science, but nature delights in what Hogarth very justly called *the line of beauty*. This is a flowing line with varied flexures, somewhat resembling the letter S, but not so much, nor so regularly bent. We see instances of it in the objects that surround us, in the stream that winds through the vale, the curvature of mountains, the shapes of leaves and flowers, the curling smoke, the forms of the clouds, and the waves of the sea. We behold it in all parts of the animal creation, in the elegant shape of the horse, the swan, and the dove, and more particularly in the human figure.

The

The colours which nature has given to her most striking works, excite a great degree of pleasure. What a gratification mixed with awe results from beholding the bright stars shining with the most vivid lustre in the azure firmament of the heavens—the sun rising or setting amid clouds tinged with the most gorgeous hues, which no painter can portray, no poet can describe—or the wide arch of the rainbow, whereon the prismatic colours are regularly displayed!

But the colour in which nature has dressed the vegetable kingdom is that on which the eyes are fixed with most ease and pleasure. *Green* gives a repose and refreshment to the sight, after it has been dazzled with the rich tints of yellow, red, or blue. It is to the eye what the soft sounds of music are to the ear. The verdant meadow, the outstretched lawn, and the leafy grove are objects that never lose their attractions. That green is the colour which harmonises best with all others, may be observed from flowers,—the primrose and the violet appear no less to advantage, surrounded with green leaves, than the rose and the lily.

Thus the beautiful objects of nature are as open to observation, as the pleasure derived from surveying them is extensive. But the faculty of enjoyment, which is so common to all mankind, must be cultivated with care, that it may be advanced to that degree of excellence, of which it is capable. The progress of taste towards refinement de-

pend upon the activity of the mind, the extent of its observations, and the improvement of general knowledge. In phlegmatic persons, it is languid and inactive, and is rather a passive acquiescence in the discoveries of others, than an original perception of their own. From a constitutional indifference, or a dulness of organs, they are slow in deciding upon the beauty of any object presented to them; and when they finally decide, they often express themselves in vague and inappropriate language, which conveys only some confused notions of satisfaction. They pronounce the same opinion of objects the most dissimilar; they say equally of a miniature picture and St. Paul's Cathedral, that they are "charming, or very fine;" and thus conceal the indistinctness of their ideas, or their want of sensibility, under the convenient disguise of indiscriminate and general termsⁱ.

A refined Taste depends upon sensibility for its acuteness, and upon judgment for its correctness. Sensibility renders the mind alive to all the impressions made by external objects, as it is powerfully affected by every surrounding scene. This amiable quality is the source of the benevolent affections, and animates the soul with love, friendship, pity, and philanthropy. As any of these virtues may degenerate into weakness, from an excess of

ⁱ J'ai toujours contemplé les ouvrages de l'art avec un certain enthousiasme, et non comme cet homme, qui voyant la mer pour la première fois, dit qu'elle étoit *assez jolie*. Winkelman, vol. i. p. 64.

sensibility ;

sensibility ; so likewise the decisions on the works of art may be fantastic and frivolous, unless they are regulated by deliberate judgment. These principles of true Taste stand in need of mutual aid, since the determinations of the judgment are cold and lifeless by themselves, and each effort of sensibility is little more than a blind impulse, if not attended by the approbation of the judgment. If the precision of Aristotle had been enlivened by such warm feelings as those of Longinus, his *Treatise on Poetry* would have possessed more attractions ; and if Longinus had restrained the flights of his fancy with the logical precision of Aristotle, he would have defined the sublime with more accuracy, and left a more perfect work.

A relish for those obvious beauties, which strike the senses, depends upon a greater or less degree of sensibility ; but in order to form a just and correct opinion of a work of genius, so many circumstances must be brought under consideration, so many qualities and relations of objects ought to be remarked, distinguished, and compared ; and the design of the writer or artist ought to be so well ascertained, and such constant observation both of nature and art are absolutely requisite, that no one, who is not possessed of sound judgment and enlarged experience, is qualified to pass a public and authoritative opinion.

And as judgment refines and matures the principle of Taste, it follows from the gradual improvement

ment of that faculty of the mind, that Taste is capable of very high improvement. A child is pleased with the most incorrect imitations of the human figure; as he grows older he derives greater pleasure from more perfect resemblances; he looks with indifference or contempt upon what he at first admired, and smiles at his own simplicity for having ever thought it worth his attention. The principle of Taste is the same in his ripe as in his early years; it is only corrected by more accurate comparisons, and matured by more enlarged observation. In the course of his remarks he not only learns to value the finest productions of art, in preference to such as are less perfect; but by being conversant with them he gradually acquires a more delicate perception of beauty. He who has been unaccustomed to music, when he first hears a sublime chorus of Handel, however he may be gratified by the general effect of the concert, is not immediately sensible of the charms of the composition, and the masterly adaptation of the several parts to each other. He does not distinguish their close connexion, relation, and contrast. He who surveys a picture by Raphael may be struck by the brilliancy of his colours, and the majesty of his figures; but it is only by repeated inspection, that he becomes well acquainted with the unaffected grace and noble simplicity of his designs. The boy in reading Homer is amused by the variety of incidents, and warmed by the animated description of his battles. Repeated perusals however can alone inspire him with a relish for the harmony of the versification, the

the accuracy of the descriptions, and the admirable variety of the characters. Thus by the force of habit and reflection the man of Taste is formed: even his faculties of seeing and hearing become more acute by exercise; and he gradually acquires a true relish for all the particular and latent beauties, of which in early life he had no adequate conception.

The advance of national Taste is similar to the progress of Taste from childhood to manhood. When the attention of an unpolished people is first directed to works of art, they are captivated by mere novelty; and the rudest paintings and most unpolished verses obtain their applause. In proportion as superior efforts of genius are made, the opinion of the judicious part of the public, at least, becomes more correct; and what at first delighted is finally rejected with disapprobation. As soon as comparisons are made between different productions of the same kind, true Taste is brought into action, its decisions are called for, and the justness of its discriminations is universally acknowledged. The Romans in the time of Horace blushed at the praises, which their ancestors had bestowed upon the comedies of Plautus, and were charmed with the more polished and elegant works of Terence. The Taste of refined persons of the present age is more favourable to the delicate humour of Addison, and the pointed satire of Swift, than the broad burlesque of Rabelais, or the indecent scenes of Beaumont and Fletcher. By our ancestors, *romances,*

mances, which contained the marvellous adventures of wandering knights, distressed damsels, and formidable giants, intermixed with exaggerated sentiment and inflated passion, cold description and intricate incident, were read with eagerness. As however the improving good sense of the nation began to dislike works that were the offspring of mere fiction, many of the more modern writers have shown their abilities in the composition of *novels*, which please in proportion as they embellish the scenes of nature with lively colours, introduce probable, yet uncommon incidents, describe the passions with warmth, and paint such characters, as, without deviating too far from real life, strike by their novelty and spirit. From the happy mixture of these ingredients, combined in various proportions, results the pleasure which young readers experience in the perusal of Robinson Crusoe, and the Vicar of Wakefield, while those who are older, and more conversant with genteel life and manners are gratified with the works of Charlotte Smith, Madame D'Arblay, and Mrs. Opie.

Hence it appears, that, as often as mankind have a fair opportunity of making proper comparisons, true Taste always triumphs over false. Good models quickly attract judicious admirers; the offspring of caprice and licentious imagination sinks gradually into neglect and oblivion; and succeeding ages, profiting by the errors and follies of the past, and persevering in repeated trials, make more rapid

By the Standard of Taste.

rapid and close approaches to the regions of nature and truth.

This refinement in national Taste is not more observable at one period of time, than degeneracy is at another. After the standards of literature had been erected by the writers of the Augustan age, the Taste of the Romans in succeeding times was vitiated by affectation and a rage for novelty. The copiousness of Cicero, the correctness of Virgil, and the perspicuity of Cæsar gave way to the elaborate neatness of Pliny, the lofty but sometimes puerile flights of Lucan, and the affected sententiousness of Seneca. The same degeneracy was visible in other arts. The column of Trajan was stripped of its elegant sculpture to adorn the triumphal arch of Constantine, and the additions made at that time were executed in a far inferior style. The pictures, lately discovered among the ruins of Herculaneum and Pompeii, prove that the art of painting was on the decline about the same period. Succeeding ages sunk much lower in the scale of imitative excellence; or, in other words, contributed to bring back the savage state of mankind, since the Goths and Vandals waged war against the arts, as well as the persons of their foes. In one of the darkest ages of Gothic ignorance, the works of Cicero, Livy and Tacitus, were publicly committed to the flames by order of a bigotted Pope; and, considering that such persecution was carried on against literature, we cannot be surprized that at the same time a childish play of words was regarded as exquisite

quisite wit, and the wildest rhapsodies, destitute of the smallest degree of poetical genius, were highly applauded.

But even when the arts have obtained a high degree of perfection, the common people never reach any refinement of Taste, except in those remarkable cases, when a peculiar art coincides with their natural temper, and has been long cultivated and admired. The Athenians could decide with accuracy upon the merits of Demosthenes as a public speaker: and in the present age, the Italians are excellent judges of music. In most countries, novelty, in every form of extravagance, broad humour, and caricature paintings and drawings afford the greatest delight to the populace. This preference is congenial with their general love of coarse pleasures, and distinguishes the multitude from the more polite classes of every nation. The inferior orders of society are therefore disqualified from deciding upon the merits of the fine arts; and the department of Taste is consequently confined to persons enlightened by education, and conversant with the world, whose views of nature, art, and mankind, are enlarged by an extensive range of observation, and elevated far above gross ignorance and vulgar prejudice.

Still, however, persons of cultivated Taste must be sensible, that there are limits, to which the improvement of Taste ought to be confined, if they wish

with to enjoy the largest share of pleasure that it is capable of affording.

Right ever reigns its stated bounds between,
And Taste, like morals, loves the golden mean^k.

Is it not possible that our decisions may become too fastidious, and that our judgment may be occupied only in discerning trivial faults, and thus may divert the attention from those great and distinguishing beauties, which called forth all the soul of the writer or artist? This disposition of mind is like an extreme irritability of temper, or a weak texture of nerves, liable to be disordered by the slightest accidents, and which, far from being a proof of sound health, is rather a symptom of disease. The feelings of that connoisseur are not to be envied, who turns from the majestic forms and glowing colours of Rubens, as displayed in the marriage of Mary de Medicis, to censure the introduction of flying Cupids and other allegorical figures: nor can he be denied to sacrifice his pleasure to petty discernment, who prides himself upon discovering, that in the noble equestrian figure of Charles the first at Charing Cross, the girths appear to be wanting to the saddle; that the fingers of the Venus de Medicis are without joints, and that some reverses of the Greek medals of the Syrian and Egyptian Kings are of rude execution. Such nicety of observation is by no means desirable; as, in-

^k Maſon's Frefnoy, l. 98.

stead of enlarging the circle of pleasure, which is the great excellence of Taste, it contributes to contract it, and makes a person severe in his censure of defects, which he ought to excuse for the sake of the beauties to which they are allied.

The man of Taste extends his observations to the appearances of nature, as well as the productions of art. He discovers beauties wherever they are to be found in the works of God and of man, and is charmed with the harmony and order of the different parts of the creation, and with the endless variety of new objects, which nature presents to his view. The flowers, as they disclose their vivid hues, the animals that move in comely symmetry, the ocean that now spreads its smooth surface, and now heaves its tempestuous waves on high—the mountains that swell in rugged majesty, the valleys clothed in verdant attire, the splendid luminary whose beams disclose the beauties of the world, and who decks the face of nature with brighter charms—the blue vault of heaven spangled with stars, and illumined by the soft effulgence of the moon—all these come under the observation of Taste, and supply it with abundant sources of enjoyment.

Taste presides with supreme authority over all the elegant arts. There are none so low in their subserviency to the uses of mankind, as not to afford subjects for its decisions. It extends its influence to dress, furniture, and equipage; but presides, as in its most distinguished and eminent provinces,

vinces, over poetry, eloquence, painting, music, architecture, and sculpture; because among them genius takes its unbounded range, and exerts its fullest power.

By GENIUS is generally meant a disposition of nature which qualifies any one for a peculiar employment in life; but in its highest sense, considered with reference to the fine arts, it may be described to be that faculty of the mind which unites *the greatest quickness of sensibility, and fervour of imagination, to an extraordinary ease in associating and expressing the most remote ideas in the most striking manner.* However bold and adventurous the man of genius may be in his flights of fancy, he seldom soars without the guidance of judgment; for judgment will not often be found to desert the art, which is its peculiar and favourite subject. He delights to strike out a new and original track, and performs without effort, under the powerful influence of that enthusiasm, which gives spirit to all his works, what was never before attempted or executed. He disdains not the aid of other minds, but studies their productions with care; and while he is cautious not to contract a bigotted attachment to any particular predecessor, he enlarges the circle of his ideas with the perfections that are dispersed among many artists or writers, and appropriates them to his own use, by giving them superior energy, elegance, and splendour. He thus aspires to excellence peculiar to himself, by giving grace to the little, and dignity to the mean; by dif-

VOL. II. s fusing

fusing an air of novelty around the most familiar objects; by painting nature in every pleasing form, attitude, and colour; and by expressing at will the powerful emotions of the passions. In the wide circle of art and nature he assumes whatever form he chooses, and in every form delights by novelty, captivates by beauty, or astonishes by sublimity. Every art is a vehicle of genius, whether it strikes the mind with admiration in the attractive loveliness of the Venus de Medici, in the sublimity of a chorus of Handel, or in the divine Madonna of Raphael. Literary productions present it to us in the battles of Homer, the Odes of Pindar, Dryden, and Gray, and the Tragedies of Sophocles and Shakespeare. The man of genius cannot possibly, from the natural imperfection of mortals, be always equal and sublime. Like the eagle, he does not pursue his course at the same height to which he occasionally rises; but still, if ever he descends, the same original character and the same majesty are visible, as he walks upon earth which distinguish him when soaring to the skies.

As this rare and wonderful faculty of genius is free and unrestrained in the exercise of its powers, and the extent of its operations, so is it likewise unconfined in its origin. It is the offspring of no particular country or age, although some particular places and times are more prolific in its productions than others. In the early periods of Grecian history the sun of genius shone forth with full splendour in Homer, Æschylus, Sophocles, Euripides, Pindar,

Pindar, Theocritus, Plato, Demosthenes, Praxiteles, Phidias, and Apelles. When Rome attempted to emulate Greece in the cultivation of arts and literature, it fired the bosoms of Lucretius, Virgil, Horace, Tibullus, Livy, and Cicero. After a long night of mental darkness, it rose again in Dante, Ariosto, Tasso, and Raphael; and finally penetrated the Island of Great Britain, to illuminate Shakspeare, Milton, Dryden, and Thomson.

Genius never displays its peculiar power so much, as by taking its flight from the incidents of its own experience, and ascending to the heights of invention. The painter and the poet look around upon all the works of nature, compare her various forms with each other, mark their defects and excellencies with a penetrating eye, and from this wide survey acquire a just idea of beauty. Thus from the select charms of various nymphs did Zeuxis compose the inimitable figure of his Helen; and thus did Cicero, who relates the anecdote with peculiar elegance of description, model his own flowing style, and frame his luminous composition, by studying the copiousness of Plato, the energy of Demosthenes, and the sweetness of Isocrates^s. By words or by colours the man of genius expresses an exact resemblance of the archetype, which fills and sublimates his fancy. Not that by such a refinement he ever deserts nature, for then he would only describe the phantoms of a disordered intellect; but

^s Cicero de Inventione, lib. ii. Quint. lib. x. c. 1.

by confining the offspring of his invention within the limits of good sense and probability, he gives more beauty to description, more strength to passion, more grace, dignity, and perfection to character, than are usually to be met with in real life. The chief merit of this representation of ideal excellence consists in marking an object with such peculiar features, as are eminently just, natural, and attracting, at the same time that the pleasure derived from these circumstances is increased by a happy effort to exalt the dignity of man, and refine the charms of nature. The prolific powers of the mind occupied continually in combining remote images, in selecting the choicest circumstances, and in contrasting opposite passions and effects, produced the landscapes of Claude Lorraine, the cartoons of Raphael, and the characters and actions described by Homer.

If genius, which is the soul and the animating principle of invention, both in literature and the fine arts, be wanted, no other excellence of an inferior kind can compensate its absence. An heroic poem, or a tragedy, may be written with the most exact attention to the rules of criticism, the versification may be polished and harmonious, it may be replete with fine morality, and enlivened by brilliant imagery; yet still a work may have few charms to fix the attention of a judicious reader. Tired of the insipidity and tameness of a narrative in verse, he quits the *Henriade* of Voltaire for the *Iliad* of Homer; and after having confined his re-

luctant

luctant eye to the cold sentiments of Cato, and the lofty diction of Irene, he flies with redoubled pleasure to the eventful scenes and fervid passions delineated in Macbeth and Othello.

Hence it appears, that to strike the mind with force and surprise, to impress upon every one its own vivid and glowing sensations, to set all objects strongly and perfectly before the fancy, and to produce a kind of *dramatic* effect, as if persons were acting, and objects were presented before our eyes, are the certain effects of genius. Homer, the great father of epic poetry, moves us by a kind of enchantment, and seizes the mind by the irresistible magic of his art. He resembles his own Demodocus^t, the blind and venerable bard of Phæacia, who by his animating song and powerful harmony rouses the passions at will, and fires the soul with alternate joy and grief. Shakespeare, the immortal dramatist of the British stage, is like his own Othello, when conversing with Desdemona, as he excites the strongest interest in those who listen to his descriptions, and gives even to repetition the charms of love and delight. The memory grasps with a strong and lasting hold the works of such a genius. What is once read is rarely forgotten; and what has been once enjoyed by the reader is always recollected, without any diminution of the first pleasure. Who can peruse without emotion,

^t Homeri Odyss. lib. viii. l. 62, &c. lib. xiii. l. 28, &c. Othello, act i. scene 3.

or call to mind without feeling the mingled sensations of pleasure and surprise which he originally felt, the parting interview of Hector and Andromache in the Iliad, the conversation of Macbeth with his wife after the murder of Duncan, and the wild and terrific denunciations of the Bard of Gray?

The fondness, which superficial observers express, for new and extraordinary objects, usually fluctuates in uncertainty, and is frequently founded on caprice: but true Taste is ever regulated by a fixed standard^u. This standard is supported by the decisions of the judicious and the enlightened; and the authority of such decisions depends not upon the consent of persons of any country in particular, where national prejudices or local habits pervert the judgment. It is not founded upon the partiality of a few admirers, who raise an author to temporary distinction; but it is an union of just conclusions, deduced from sound principles of reason: it is derived from the concurrent voices of men of *various ages and nations*, possessed of enlarged and cultivated understandings, who have surveyed the works of genius with close attention, and have recorded in animated descriptions the impressions made upon their minds. This authority has stamped its approbation upon works which have obtained the general applause of all ages and countries, and must still continue to produce a similar

^u Reynolds's Discourses, p. 295. Elements of Criticism, vol. ii. p. 497. Du Bos, tom. ii. p. 320.

effect, so long as the intellectual powers of man remain the same;—so long as his imagination and his heart are capable of being affected by all that is sublime, beautiful, and pathetic.

The public opinion seldom fixes the stamp of permanent approbation upon works of genius before a considerable time has elapsed. Fame is a plant that comes late to maturity; and it never flourishes more vigorously, takes deeper root, or puts forth more luxuriant branches, than after it has been checked in its early growth. Those works, which are highly commended as soon as they are published, rarely maintain their reputation through succeeding ages, because their claim to distinction is built upon limited views of nature, the fashions, the follies, or the vices of the times. Their attractions cease as soon as the originals from which they are taken are impaired or destroyed by age. The Hudibras of Butler shares the fate of all occasional satire, and is now more praised than read. The Poems of Churchill, and the Life of Tristram Shandy, have gradually declined in popularity, since the death of their respective authors. What degree of applause have the Probationary Odes, or the scurrilous productions of Peter Pindar, to expect from the dispassionate and cool judgment of a distant age?

Early reputation seldom proves the harbinger of future glory. While the public opinion is depressed too low by the envy of rivals and detractors, or raised too high by the flattery of injudicious friends,

no fair decision can be expected. Time alone can overcome these obstructions, and cause the agitation and the conflict of prejudice and partiality to subside. A considerable period may indeed elapse before an equitable posterity will make amends for the injustice of their forefathers: but in the mean time this soothing consolation may cheer the drooping spirits of neglected genius—that a few years will put an end to the attacks of slander and envy; that, though his works may outlive the partiality of friends, they will triumph over the malignity of enemies; that they will pass like gold from the furnace pure and unhurt, through variations of taste and changes of manners; and that the longer they remain, the brighter will be their fame, and the more durable their honour. The final decision of mankind is seldom if ever wrong, because it results from the unprejudiced examination of those who have no interest in traducing merit, or in depriving it of reward. Party-spirit for a long time obstructed the reputation of the *Paradise Lost*; and the productions of Shakespeare and of Racine obtained their just estimation, not from their contemporaries, but from the generations that succeeded them^w.

^w Every man of genius may console himself with the prophecy of Milton, which has been so fully verified with respect to his own poetry:

“ At ultimi nepotes,
 Serique posteri,
 Judicia nobis æquiora forsitan
 Adhibebunt integro sinu,
 Tum livore sepulto,
 Si quid meremur, fera posteritas sciet.”

Ode ad J. Rousseium.

Authority lends its assistance to regulate private judgment; but its dictates are not so rigorous, nor its decisions so arbitrary, as to exclude the privilege, which every one may rightly claim, of judging for himself. It is not because Aristotle, Horace, and Quintilian have laid down the rules of criticism, that we must implicitly bow to their authority. It is because their rules are derived from the works which they criticize,—works which have been distinguished by the admiration of the most improved part of mankind, from their first appearance to the present times. It is therefore with good reason Longinus has made the concurrent applause of persons of different ages, various characters and languages, a criterion of the true sublime. The sensible part of mankind, as we have before remarked, possess in common the principles of Taste, to which every production of literature and the arts may be referred. But it may abate the vanity of those who judge hastily, to recollect how often their final have differed from their first opinions. From an impatience of control, a pride of singularity, and a rage for novelty, we may revolt against the established decrees of the republic of letters, and the schools of the arts: but mature reflection upon the grounds on which these decrees were pronounced, more complete and more distinct views of nature, and our own more enlarged experience, will induce us to allow their propriety, and acknowledge their justness. “The addition of other men’s judgment is so far from weakening, as is the opinion of many, our own, that it will
fashion

fashion and consolidate those ideas of excellence, which lay in their birth feeble, ill-shaped, and confused; but which are finished and put in order by the authority and practice of those, whose works may be said to have been consecrated by having stood the test of ages^x."

The tales of Ovid delight the imagination of boys, at a time when they peruse many passages of Virgil with indifference: in riper years they gradually experience an alteration of opinion, and applaud the correctness and delicacy of the one, in proportion as they disapprove the improbable fictions and puerile descriptions of the other. The glowing and gorgeous tints of the Florence school please the eye at the first view; but it requires time and comparison to relish the simple majesty and sublime forms of the Roman artists.

Of a pure and correct Taste, the genuine offspring is candid and enlightened criticism. A good critic answers to the character which Pope has so finely drawn of Longinus. He is

"An ardent judge, who, faithful to his trust,
With warmth gives sentence, and is always just."

It is his province to determine the general laws of the arts, to assign their beauties to particular classes, and to explain the reasons of their affecting

^x Reynolds's Discourses.

the mind with pleasure. He observes irregularities with a penetrating eye, and discovers that precise character of excellence or defect, by which every work is marked.

Although such is the proper description of a critic, we may venture to pronounce, that all who are commonly known by that name have not an equal claim to our approbation. *Scaliger*, the enthusiastic admirer of Virgil, endeavoured to raise the fame of that elegant poet by depreciating Homer; and the deep and various learning displayed in his critical works is but a slight palliation for the weakness of his arguments, and the violence of his prejudices. *Hurd*, the ingenious annotator on Horace, is deservedly esteemed as an eminent scholar, and a correct writer: but surely in his critical productions he discovers much cold precision of remark, and much fondness for systematic trifling. *Warburton*, considered as a commentator on Shakespeare, showed a great degree of ingenuity; but it was too often exerted without judgment and without taste. He only saw in his author what he predetermined to see, and thus frequently sacrificed the sense of Shakespeare to the caprices of his own fancy. He amuses his readers by his specious arguments, more than he instructs them by his explanation of obscure passages. Comprehensive as was the mind of *Johnson*, his judgment was often perverted by prejudice; and in his *Lives of the English Poets*, much as they abound with solid observations, and just principles of criticism, he
had

had too little relish for works of mere imagination, and was too sparing in his concessions to the Muses of Milton and of Gray. If we wish to be directed to authors, who were eminent for correctness of taste, we may select in painting *Fresnoy*, *Vasari*, and *Reynolds*: in music, *Burney*: in eloquence, *Cicero* and *Quintilian*: and in poetry, *Horace*, *Pope*, *Gray*, and the *Wartons*. These were critics, who had the singular merit of teaching that art in which they were themselves distinguished; and their own works are an example and an illustration of their rules. They knew the difficulty that attends every attempt to reach the summit of excellence; and therefore, in the distribution of their censure and their praise, they were considerate, generous, and candid. Their various knowledge, extensive experience, and refined judgment, qualified them for their important office as arbiters of merit; and they deserve the earnest attention of the public, when they preside at the tribunal of taste, and pass sentence upon the works of literature and the arts.

CHAPTER II.

Music,

“ *WHAT* is music? An innocent luxury, unnecessary indeed to our existence, but a great improvement and gratification of the sense of hearing. It consists at present of melody, consonance, (or harmony) and dissonance.

What is melody? A series of sounds more fixed, and generally more lengthened than those of common speech, arranged with grace, and of proportional lengths, such as the mind can easily measure and the voice express. These sounds are regulated by a scale, consisting of tones and semitones, but admit a variety of arrangement as unbounded as imagination.

What is consonance, or harmony? A coincidence of two or more sounds, which being heard together, by their agreement and union, afford to ears capable of judging and feeling a delight of a most grateful kind.

What is dissonance, or discord? It is the want of that agreeable union between two or more sounds which constitutes consonance.

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What kind of musical tones are most grateful to the ear? Such as are produced by the vocal organ. And next to singing, what kinds of sound are most pleasing? Those which approach the nearest to vocal. Which are they? Such as can be sustained, swelled, and diminished at pleasure. Of these the first in rank are the Violin, Flute, and Hautbois. But what instrument is capable of the greatest effects? The Organ; which can not only imitate a number of other instruments, but is so comprehensive as to possess the power of a numerous orchestra. But has it no imperfections? Yes, it wants expression, and a more perfect intonation. What kind of music is the most pleasing to mankind? To practiced ears, such as has the merit of novelty, added to refinement and ingenious contrivance; to the ignorant, such as is most familiar and common^y."

Music is an object of universal love, and from its prevalence in every age, and by its cultivation in every part of the world, it seems as if there was something in the "concord of sweet sounds" congenial with the mind of man. Among rude and unpolished nations, it has ever risen to peculiar importance, and been introduced to aid the expression of joy and grief, upon the most serious and the most festive occasions, in the temple and in the theatre, in solemn processions and in the sprightly dance. It has ever been the solace and the delight of men of genius, and there is no subject

^y Burney's History of Music. Preface.

which is praised in more ardent expressions, or expatiated upon with more delight, by Homer, Shakespeare, Tasso, and Milton. It cheers the traveller as he pursues the journey of life, and produces a sweet oblivion of his fatigue.

For a description of the powers of Music, recourse can best be had to the sister art, to which sound is so frequently indebted for the most pleasing alliance of sense: and perhaps it will not be found easy to produce a short description of its application to the various situations of life, and different feelings of the heart, more beautiful and just, than the following verses—

Queen of ev'ry moving measure,
 Sweetest source of purest pleasure,
 Music ! why thy powers employ
 Only for the sons of joy ?
 Only for the smiling guests
 At natal, or at nuptial feasts ?
 Rather thy lenient numbers pour
 On those whom secret griefs devour :
 Bid be still the throbbing hearts
 Of those whom death or absence parts ;
 And with some softly-whisper'd air
 Smooth the brow of dumb despair ^z.

As the notes used to excite any sensations may be equally in unison with those of a similar nature, Music requires the aid of language to express any individual passion. If correspondent words are

^z See the Medea of Euripides, l. 192, &c. from which Dr. Joseph Warton took these ideas.

the associates of sound, they become by this alliance specific indications of the feelings and passions; and the pleasure conveyed to the ear is attended by the more refined gratification of the understanding. Mysterious as the mode of the operation of sounds may be, it is clear that nature has connected certain emotions with them, and their effect is sufficiently ascertained, and deeply felt; for they are the keys, which unlock all the passions of the soul. Sounds variously modified, and judiciously combined with words, can melt with pity, sink in sorrow, transport with joy, rouse to courage, and elevate with devotion. They have a peculiar effect in cherishing the tender passions, and calling up the long forgotten images of the past, with all their attendant train of associated ideas. While the ear is delighted with the strains of harmony, the fancy is busied in the contemplation of the most affecting images, and the whole soul is exalted to the bright regions of joy and happiness.

The order of sounds in simple melody resembles in their principles that proportion of parts, which constitutes the symmetry of the human form. Our sight and hearing, the noblest of our senses, are indulged by the arts with their proper gratifications. As painting and sculpture produce the means of enjoyment to the eye, so music supplies entertainment to the ear. Every country has its peculiar music, as every soil produces its peculiar fruits and flowers; and we are most attached to that kind of
melody

melody and harmony to which we have been habituated from our earliest years. Of all musical airs, none are more truly affecting than those which were anciently adapted to the popular ballads of particular countries, such as Switzerland and Scotland.

They come o'er the ear, like the sweet south
That breathes upon a bank of violets,
Stealing and giving odour——

They show in the greatest degree the power of the association of ideas. They can awaken the lively emotions of tenderness and melancholy pleasure in every susceptible mind: but their effect is felt in the highest degree by the natives of those countries, when far distant from home. As soon as the Swiss foldier hears the *Ranz des Vaches* sung in a foreign land, the transporting sounds instantly present to his mind all the attachments, the employments, and the scenery which endear his native country to him: his heart is melted with the recollection, he weeps with emotion, and his desire to return home produces a deep despondency, which nothing but the sight of his beloved objects can effectually remove.

THE SONG OF THE SWISS PEASANT.

O when shall I return to see
All the dear objects to me?
Our lofty hills,
Our chrystal rills;

Our cots upon the mountain's side:
 O when with Isabel so gay,
 Our hamlet's joy and pride,
 Shall I dance the roundelay,
 Beneath the shade of poplar high,
 To the flute's soft melody.

II.

O when shall I return to see
 All the objects dear to me?
 My father, my mother,
 My sister, my brother:
 My pretty lambs,
 Highly frisking round their dams:
 And my shepherds so gay,
 Far more frolicsome than they.
 O when shall I return to see,
 All the objects dear to me?^a

The dignity of the art is best displayed when
 the efforts of its great masters are directed to sacred

I.

Quand reverrai je en un jour,
 Tous les objets de mon
 amour?
 Nos claires ruisseaux,
 Nos coteaux,
 Nos hameaux,
 Nos montaignes,
 Et l'ornement de nos mon-
 taignes,
 La si gentille Isabeau,
 A l'ombre d'un ormeau,
 Quand danserai je au son du
 chalumeau?

II.

Quand reverrai je en un jour
 Tous les objets de mon
 amour?
 Mon pere, ma mere
 Mon frere, ma sœur,
 Mes agneaux,
 Mes troupeaux,
 Ma bergere?
 Quand reverrai je en un
 jour
 Tous les objets de mon
 amour?

Europ. Mag. June, 1804.

music.

music. How delightful are the anthems of Kent, Boyce, and Hayes, when sung by some of the best choristers, whom St. James's Chapel, and the Colleges in Oxford and Cambridge, can boast:— and how transporting are the airs of Handel when warbled from the lips of a Mara and a Billington. They disengage our minds from the common objects of life, lull our passions to repose, and remind us of the pleasure enjoyed by our first parents when listening to the music of the angels in the garden of Eden.

How often from the steep
Of echoing hill or thicket have we heard
Celestial voices to the midnight air,
Sole, or responsive each to others note,
Singing their great Creator? oft in bands
While they keep watch, or nightly rounding walk,
With heavenly touch of instrumental sounds
In full harmonic number join'd, their songs
Divide the night, and lift our thoughts to heaven^b.

In a good concert of instrumental music, the different parts are so combined and justly adapted, as to produce very great pleasure. The various notes are so ingeniously blended, there is such an happy union of the loud and the soft tones, of stringed and of wind instruments, of vocal and instrumental power, that the ear is filled, not overwhelmed; transported, not distracted. Not only the ear, indeed, enjoys a very great sensual, but

^b Paradise Lost, book 4.

the mind experiences a considerable intellectual gratification.

The prevailing fashion of the present times is by no means favourable to the union of the best efforts of Poetry with the noblest productions of Music. Handel indeed gave new charms to the lyric muse of Dryden, and Arne composed the opera of Artaxerxes in the most delightful style. But the sound and the sense, far from possessing uniform spirit, are in more recent productions, especially in several Italian operas, a heavy burthen upon the exertions of each other. The most insipid airs not "married to immortal verse," but united to unmeaning words, and their alliance is forced and unnatural. Nothing indeed can be more tiresome or absurd than the continued *Recitative* of an Opera. It has neither the charm of singing, nor the plain expression of conversation. "What can be more contrary to nature than the singing a whole piece from beginning to end, as if the persons represented were ridiculously matched, and had agreed to settle in music both the most common and most important affairs of life. Is it to be imagined that a master calls his servant, or sends him on an errand singing; that one friend imparts a secret to another singing; that men deliberate in council, and that orders in the field of battle are given singing; and that men are melodiously killed with swords and darts? This is the downright way to lose the life of representation, which without doubt is preferable to that of harmony;

mony; for harmony ought to be no more than a bare attendant, and the great masters of the stage have introduced it as pleasing, not as necessary, after they have performed all that relates to the subject and discourse. Nevertheless, our thoughts run more upon the performers than the hero in the opera, and Viganoni and Morelli are seldom out of our minds. The mind not being able to conceive a hero that sings, runs to the actor or the actresses; and there is no question but that in our most fashionable operas, Banti, or Bolla, or whoever happens to be the principal singer, is a hundred times more thought of than Zenobia, or Didoⁱ.”

In our most fashionable concerts, instrumental performance is, in many instances, carried to such a degree of refinement, that one sense is gratified at the expence of another; since it is converted into an amusement for the eye, rather than a delight to the ear, or a solace to the mind^k. The brilliant execution of an eminent performer, displayed in some hasty and light composition, is regarded as an excellence of the first value. The

ⁱ “These remarks of St. Evremond relate to the musical *Tragedy* of the Italians. With respect to the musical *Comedy* or *Burletta*, it affords an additional proof how little music as such, is able to support itself. In the tragic opera, it borrows aid from the tumidity of the Poetry; in the comic, from the powers of ridicule, to which music has not the least relation.” Hawkins on Music, p. 74. Preface.

^k ————— Migravit ab aure voluptas
Omnis ad incertos oculos, & gaudia vana.

audience judge of such music by the difficulty of its execution; they lavish their praise upon the principal performer, but are unmoved by the music, and their applause operates as an encouragement to new extravagances of the same kind. But amid this prevailing taste, which leads to what is capricious and desultory, a judicious hearer seeks for delight in the compositions of Purcell, Jomelli, Corelli, Handel, and Haydn. He prefers the steady and spirited performance of their works to the modish refinements in practice, and what are deemed the improvements in the power of execution; because he *feels* that the productions of these great composers are original and spirited, truly grand and affecting, and exert the sweetest and noblest influence of harmony over his mind.

For a list of Books published upon the subject of Music from the beginning of the last century, see Burney's History of Music, Vol. 4. ad finem.

II. *Painting.*

The art of Painting gives the most direct and expressive representation of objects; and it was doubtless for this reason employed by many nations, before the art of writing was invented, to communicate their thoughts and to convey intelligence to distant places. The pencil may be said to
write

write a universal language; for every one can instantly understand the meaning of a painter, provided he be faithful to the rules of his art. His skill enables him to display the various scenes of nature at one view; and by his delineation of the striking effects of passion, he instantaneously affects the soul of the spectator. Silent and uniform as is the address which a picture makes to us, yet does it penetrate so deeply into our affections, that it seems often to exceed the powers of eloquence. Its effects are sometimes truly wonderful. It is said that Alexander the Great trembled and grew pale, on seeing a picture of Palamedes betrayed to death by his friends, as it brought to his mind an acute recollection of his treatment of Aristonicus. Portia could bear with unshaken constancy her final separation from Brutus, but when she saw, some hours after, a picture of the parting of Hector and Andromache, she burst into tears. The influence of the pencil indeed is so great and extensive, that its productions have constantly been the delight of all countries of the world, and of all seasons of life¹. Poetry and Painting are sister arts; if the latter borrow many subjects from the former, the obligation is repaid by the glowing metaphors and striking illustrations with which Painting requites

¹ Richardson, chap. i. Quintilian, lib. xii. c. 10. Reynolds, p. 101. The peculiar beauties of the great masters of the Italian schools are finely touched by Fresnoy, l. 519, &c. His poem *De Arte Graphica*, with the translation of Mason, and the notes of Reynolds, furnishes the general rules of the art, and the principles of criticism.

Poetry. The Grecian painters caught many of their finest ideas from poets and historians. The imagination of Phidias was aided in forming his Olympian Jupiter by the sublime description of Homer. The horrid story of Count Ugolino and his family, as described in the expressive strains of Dante, in his *Inferno*, gave a noble subject to the bas-relief of Michael Angelo, and was afterwards as affectingly represented by the masterly pencil of Reynolds. Gray, when describing the Bard, says,

“ Loose his beard, and hoary hair
Stream'd, like a meteor, to the troubled air ;”

He is supposed to have recollected the celebrated picture of Raphael, at Florence, representing the Supreme Being, in the vision of Ezekiel.

A good picture produces a momentary enchantment, carries us beyond ourselves, and either transports us into the midst of the most delightful scenery, or places us by the side of saints, martyrs, and heroes. It brings before us the most eminent persons, either living or dead, charms the imagination with their ideal presence, and assists us while we contemplate their persons, and examine the expression of their features, to recal the memory of their virtues. It amuses the eye with the views of nature, however remote the original scenes may be from the spectator, and gives to the Swede or the Russian the fair portrait of Circassian beauty, or
the

the bright and smiling objects of Italian scenery. The landscapes of Claude Lorraine delight the eye with the rich selection of palaces, extensive prospects, and glowing skies. The sea-views of Vanderdelde are justly admired for truth and accuracy. The portraits of Vandyke charm by lively expression of character, grace of design, and delicacy of colouring. Hogarth displays a just representation of common manners, from which every spectator may take a moral lesson.

———Thy works a school,

Where strongly painted in gradations nice,
The pomp of folly, and the shame of vice.
Reach'd thro' the laughing eye the mended mind,
And moral humour sportive art refin'd.
While fleeting manners as minutely shown,
As the clear prospect on the mirror thrown;
While truth of character exactly hit,
And drest in all the dyes of comic wit;
While these in *Fielding's* page delight supply,
So long thy pencil, with his pen shall vie^m.

But of all pictures, none are so interesting in the display of figures, none so powerful in effect, as the *historical*. This branch of the art maintains the same superiority over all others, which tragedy has acquired over epigrams, pastorals, and satires. In such pictures there must be dignity of subject combined with propriety of expression, but *Unity of design*, that is, the connexion of the subordinate figures with the principal one, forms their great ex-

^m Hayley on Painting.

cellence.

cellence. There is great elegance of figures, and brilliancy of colouring, in *the Pembroke Family*, by *Vandyke* at Wilton; but the picture is very deficient in the excellence of which we are speaking. Each individual of the group forms a distinct portrait, and is no otherwise connected with the rest, than as they are all painted upon the same canvas. Such a defect in a point so essential to historical painting, may remind us of the assemblage of unconnected stories, which compose the *Orlando Furioso* of Ariosto, and the *Fairy Queen* of Spenser.

This unity of design is displayed in many celebrated pictures, such as the *Tent of Darius* by Le Brun, *St. Paul preaching before Felix* by Raphael, the *Presentation in the Temple*, and the taking down Christ from the Cross by Rubens; and the last Supper by Pouffin. The *Death of General Wolfe*, and the *Resurrection of Lazarus* by West, possess similar merit.

But of this excellence no happier instance can perhaps be adduced than *the Cartoon of Raphael, representing the Death of Ananias*. At the first glance we become interested in the awful scene. The place is a spacious hall. The apoplectic figure prostrate on the ground, is evidently Ananias, the victim of supernatural power. St. Peter, sublime and majestic, stands on a raised platform, with his arm extended in a threatening manner, as if he had just pronounced his doom. The terrour
occasioned

occasioned by the sudden stroke is expressed by the features of youth and middle age on each side the sufferer. Sapphira, the accomplice and the wife of Ananias, is just approaching the fatal centre. In this composition of near thirty figures, none can be pointed out as a figure of common place or mere convenience; they are linked to each other, and to the centre, by one chain. All have room to act their proper parts with reference to the main incident, and like the rays of a circle, all conduct the eye to the central point^a.

The admirers of Painting in this country enjoy very favourable opportunities of surveying fine specimens of their favourite art. Pictures of inestimable value have of late been brought from abroad, and our collections bid fair to rival most of the cabinets upon the continent. Since the French Revolution, London has become more than ever a repository of the choicest productions of the pencil. A great improvement may consequently be expected in the general taste, as an amateur has it in his power to contemplate such numerous works of the masters before mentioned, in addition to the delightful productions which display the boldness and grandeur of Michael Angelo, the wild fancy of Salvator Rosa, the brilliant colouring of Titian,

^a I am indebted for this example to Mr. Fuseli's lectures, such is his learning, and refined taste, that every reader must be highly gratified by *studying* them;—for a superficial perusal cannot do them justice, more particularly as his style is affected, and obscure,

the graceful forms of Guido, the chaste manner of Correggio°, the elaborate accuracy and rich tints of Rembrandt, the classic elegance of Pouffin, and the spirited expression of Lodovico Caracci.

They who take a pleasure to inspect collections of paintings should endeavour to be accurate in their observations upon the works of celebrated masters, and try to discover the cause of the pleasing effects produced on their minds. A refined taste can only be formed by studiously examining all the parts of a composition; the resemblance to nature, the truth, elegance and grandeur of the design, the grace of the figures, and the magic touch of the pencil which gives warmth and spirit to every part.

One principal requisite on which to found an accurate judgment in painting is to be conversant with sacred and profane history; particularly the former, as many subjects of the finest pictures are taken from the Bible. Another requisite is to study nature, so as to have fixed in the memory exact and beautiful images of every object that can enter into a composition, and to accustom the eye not only to what is graceful and elegant in the human form, but what is striking and natural in trees, rocks, and rivers, as well as the different appear-

° “Di Michel’ Angelo la terribel via,
Il vero natural di Tiziano,
Del Correggio lo stil puro, e sovrano,
E di un Rafel la giusta simetria.”

From a sonnet of Agostino Carrachè.

ances

ances of light and shadow which agreeably diversify the face of nature. By examining the peculiarity of colouring, we may in many instances discover what constitutes the manner of the great masters. Every one is remarkable for some predominant tint. Black prevails in the pictures of Carlo Dolce, Caravaggio, Spagnoletto, Manfredi, and Valentino; in some a paleness, as in Vouet and Nicolo Poussin; the purple in the Bassans, and in Teniers the grey. There are other characteristic circumstances; Corregio and Titian are known by the beauty of their carnations, Rubens is remarkable for the grandeur of his figures, and Vandyke for the delicacy of his hands and arms. Holbein painted his larger portraits upon a green, and his smaller upon a blue ground. There are many other peculiarities which an attentive observer cannot fail to notice.

Portrait Painting may be justly regarded as a very pleasing branch of the art, particularly as it is carried to a considerable degree of excellence by the most admired artists of the present times. It may indeed be employed to raise many monuments to vanity and ostentation, but it likewise pays such respect to affection, to friendship, and to gratitude, as cannot fail to excite the most pleasing emotions of sensibility. By the aid of the pencil is preserved the resemblance of the parent we revere, the child we love, and the hero we honour. Although separated from the objects of our regard by extensive provinces and vast oceans, their lively portraits place us still in their company, and even though they

they are cut off by death, and are mouldering in the tomb, their beloved forms still retain the semblance of animation, they still bloom in the expressive colours of the ingenious artist, and their features excite the recollection of their dispositions, manners, and characters.

A branch of the art, which deserves particular notice, is the *Panorama*. This modern improvement in landscape painting does great credit to the ingenuity of Mr. Barker. Large Cities and Sea Views are commonly selected as the best subjects for this grand exhibition, and Portsmouth, Rome, Paris, Constantinople, the Bay of Naples, Edinburgh, and Gibraltar, surrounded with all their appropriate scenery, have been represented with great effect. The spectator is placed in the centre of these views, and when his eye becomes reconciled to the light, he is enchanted by the most complete illusion, for he may fancy himself conveyed into the midst of the real objects depicted upon the circular canvas. The management of the distances, and the colouring, particularly of the mountains, the woods, the clouds, and the sea, is most excellent. These views are so satisfactory, as considerably to abate our inability to see distant places, as all persons who visit London may survey such pleasing representations of them. It is no small credit to the painters of Panoramas, that travellers confirm their general accuracy.

While

Whilst it is our wish to inculcate the principles of true taste by recommending an attention to the works of the old masters; it is by no means intended to depreciate the works, or discourage the exertions of the painters of our own age and country. It may indeed be apprehended, that as they confine themselves so much to portrait painting, and are so much engaged in copying individual nature, and the subjects taken from common life, they cannot reach the highest degree of their profession, and excel in historical painting. But it ought to be considered, that as they are obliged to follow the current of the fashion, they have rarely an opportunity of putting their abilities to a full and fair trial. For what they *can* effect we may appeal to several excellent pictures which adorn Windsor Palace, the Shakespeare, the Milton, and the Macklin Galleries, as well as several private collections. If there be instances in which they have failed in their efforts to embody with adequate force and spirit, the conceptions of a Shakespeare and a Milton, we must consider how impossible it is to express by colours the efforts of the imagination, and to bring into one point of time the successive particulars of description. A failure in this respect is rather the defect of the art, than of the artist.

Instead of lavishing immense sums upon the Continent in the purchase of more pictures by the old masters, would it not be more honourable to the national character, to foster the genius of our own
painters,

painters, and give a new incitement to their exertions? These purposes might be effected, if the noble and the opulent would follow the example of the Illustrious Founder of the Royal Academy, and patronize eminent artists. Subjects are so far from being wanted, that it is rather a difficult task to select, than to discover them. The choice might rest with the artists themselves, who are the best judges of their own powers of execution. The history of our own country, considered not merely with a view to war, but the arts of peace, presents a wide range of topics. Let the public patronise the execution of a series of pictures to form a national gallery, let each eminent painter be well remunerated for the picture he undertakes, and a fair experiment might be made to convince the world whether British genius, fostered by British liberality, was not capable of producing such works of art, as would confer distinguished honour upon our age and country^p.

III. Poetry.

As eloquence differs from common narrative, by the use of figurative and metaphorical expressions,

^p Since the above was written, *the British Institution for Promoting the Fine Arts in this Kingdom*, has been founded under the most respectable patronage. The author would be highly gratified, if he could be induced to think that any suggestion from him had encouraged so promising an establishment.

and

and a greater copiousness of style ; so poetry is distinguished from oratory by expressions still more vivid and more ardent, by the inversion of the order of words, and the boldest flights of the imagination. And what strongly marks the line of separation between poetry and eloquence, is the ornament of verse. This gives to it a specific character, and adorns it with peculiar graces ; and it is this, which, by the harmony and variety of numbers adapted to every subject, affords so much delight to the ear. To the different kinds of poetry custom has assigned various kinds of metre ; to the epic is appropriated heroic, and to the ode unequal verse ; and this custom is so firmly established, that any violation of it would offend the public taste, and raise such strong prejudices against a writer, as an exalted genius only could overcome. The *Fairy Queen* of Spenser maintains its ground among the first poems in our language, although written in the Italian stanza : but who ever reads the heroic poem of *Gondibert*, written by Davenant in elegiac verse ?

Assisted by the observations, which we have made in different parts of this work, upon the poets of various countries, both ancient and modern, sacred and profane, we may form some notions, and it is hoped such as are not inaccurate, of their respective merits. The more we examine into the nature of genuine poetry, the more traces we shall find in its productions of that transcendent genius, which we have endeavoured to delineate, and which reigns supreme in the provinces of poetry, painting,

and music. To ascertain poetry by its effects may come within the sphere of the critic, and the man of taste: but to describe its extensive powers, and its potent influence,—and to mark its raptures and flights, “in thoughts that breathe, and words that burn;” when soaring on eagle wings “it ascends the highest heaven of invention,” belongs exclusively to the poet himself. Let then the votary of the Muses develop the mysteries of his charming art, and speak for himself; and let me, to supply my imperfect description, refer my readers to Horace, when he addresses Melpomene in the most exquisite of his lyric strains;—to Gray, describing the Progress of Poetry;—or rather let me call for the assistance of Shakespeare.

“ The poet’s eye in a fine frenzy rolling,
Doth glance from heaven to earth, from earth to heaven,
And as imagination bodies forth
The form of things unknown, the poet’s pen
Turns them to shape, and gives to airy nothing
A local habitation and a name.”

Of the nature and effects of the art, the sweet and original strains of the *Minstrel* may give no imperfect idea :

“ But hail, ye mighty masters of the lay,
Nature’s true sons, the friends of man and truth !
Whose songs, sublimely sweet, serenely gay,
Amus’d my childhood, and inform’d my youth.
O let your spirit still my bosom sooth ;
Inspire my dreams, and my wild wand’rings guide :
Your voice each rugged path of life can smooth ;

For

For well I know, wherever ye reside,
There harmony, and peace, and innocence abide^a."

It is by such exertions, as we admire in the choicest productions of ancient and modern times, that a poet communicates to his reader his own enthusiastic feelings, and opens those avenues of pleasure, which lead immediately to the imagination, and the heart. Such an extensive influence as he, and indeed every good writer, obtains over the mind, shows that literature justly claims to itself, among human inventions, a place much higher than the other imitative arts. The charms of music are vague and indefinite in their expression of emotions and passions, and short in their continuance. Painting is confined to objects of sight, and to a single point of time; but eloquence and poetry, to the advantages of them both, add many others, which are peculiarly their own. They admit a variety and an accuracy of ideas, and strengthen first impressions by a detail of striking particulars. They include a series of successive facts, which comprehend a whole subject from beginning to end. They rank higher in the scale of imitative excellence, in proportion to the exertion of mind employed in their productions, and the superior pleasure they convey. All the conceptions which the soul is able to form, the beauties of nature and emotions of passion, the range of sensible and abstract ideas, come within their reach; so that the field which they open to taste, is the most ex-

^a Beattie's Minstrel, xlii.

tensive, fruitful, and agreeable, in which we can possibly expatiate.

And here, as the principles of Taste can only be founded with justness and solidity upon a knowledge of the GREEK AND ROMAN CLASSICS, we may fairly inquire more particularly into the nature of their pretensions to the high rank, which they have for ages held among literary productions. Is their value over-rated, and do they owe their reputation solely to the venerable garb, which antiquity has thrown around them? The classical scholar needs not be apprehensive, lest his favourite authors should suffer by a fair answer to this question: for we can reply with the confidence of truth, that the estimation in which they are held is only the fruit of their genuine excellence. We view, more particularly in Homer, Xenophon, Demosthenes, Æschylus, Sophocles, Cicero, Livy, Virgil, and Horace, that ardent genius, that original air, that insight into the nature of man, and knowledge of the passions, that simplicity, and inimitable beauty both of thought and expression, which have deservedly obtained them the most conspicuous places in the Temple of Fame. They have pleased because they have copied nature in her most beautiful forms, and represented her in the most graceful and engaging attitudes. And they are justly intitled to attention, veneration, and gratitude, for the knowledge, which they have conveyed to the understanding; the images, with which they have brightened the fancy; and the sentiments, with
which

which they have softened and refined the heart. It is not therefore the affectation of pedantry, nor an implicit obedience to prescription, which lead us to commend them; but their own intrinsic and incomparable beauties draw forth the spontaneous sacrifice of justice, which we are eager to offer at the shrine of Genius. The continuation and the stability of their fame depend, not upon fashion, but upon the warm and sincere approbation of every sensible and well-informed mind. From this conviction, the classical reader may venture to predict, that as long as true taste flourishes, they will ever be studied and admired; and when once they are ridiculed and thrown aside, such neglect will be a melancholy proof of the degeneracy of mankind, and will prove a sure indication of the approach of those dark ages, in which they fall a prey to ignorance and barbarism.

The pleasures enjoyed by the man of taste delight the mind, without exhausting the spirits. In his most improved state, he is neither undistinguishing nor fastidious,—neither too easy nor too difficult to be pleased. He views all objects with a disposition suitable to their nature, and is sometimes softened by the pathetic, sometimes enraptured with the beautiful, and sometimes elevated by the sublime, and feels a noble dignity of soul resulting from the consciousness and enjoyment of their attractions. For his gratification are displayed the various works of nature and art—the charms of poetry, the graces of painting, and the melodious strains of music.

Correctness and elegance are the objects of his search: and he looks with peculiar pleasure upon those specimens of art, which are general without indistinctness, and accurate without tameness or fervility. He remarks many minute beauties, where a common observer sees none^r; and his acuteness of perception prevents him from being deluded by false and specious ornaments. Disliking equally to express himself in the language of high panegyric, or illiberal censure, he utters upon all occasions, when his sentiments are called for, the dictates of candour with the warmth of enthusiasm. He excuses many faults for the sake of the beauties, to which they are allied; for he looks upon genius, as he does upon virtue, as exhibited in the imperfect characters of mankind; and being struck with its approaches to that perfection, which is unattainable, makes allowance for the failings of human nature^s. He compares the beauties of one

^r “It is true, that other men may see as well as a painter, but not with such eyes: a man is taught to *see* as well as to dance; and the beauties of nature open themselves to our sight by little and little, after a long practice in the art of seeing. A judicious well-instructed eye sees a wonderful beauty in the shapes and colours of the commonest things, and what are comparatively inconsiderable.” Richardson, p. 91. Webb on Painting, p. 12. “Quam multa vident pictores in umbris, et in eminentia, quæ nos non videmus? quam multa quæ nos fugiunt in cantu, exaudiunt in eo genere exercitati?” Cicero, Acad. Quest. lib. ii.

^s “Si necesse est in alterutram errare partem, omnia eorum legentibus placere, quam multa displicere maluerim.” Quint. lib. x. cap. 1. See Addison on the Pleasures of the Imagination,

kind

kind with those of another; and refers every work to that standard of excellence, which the productions of the greatest masters have enabled him to erect.

He, whose mind is thus gifted by nature, and refined by education, has one faculty of enjoyment more than the illiterate and the vulgar, and may be said to possess an additional sense. When he views the prospects of nature, he feels a satisfaction far more delicate and more pleasing than that which is experienced by the tasteless owner of the best specimens of the fine arts. He is persuaded, that riches are only valuable either as ministering to the wants of the necessitous, or as bestowing upon the external decorations of life, which indeed are childish and frivolous, if they do not display elegance of mind. The cabinets, galleries, palaces, and parks of others administer to his pleasure; and he finds an agreeable companion in every picture, statue, and medal. By the pursuits of Taste, the attention is drawn off from sensual indulgence and low amusements. They form the middle link in the chain of pleasures, as they exceed those which are merely corporeal, and lead to such as are speculative and abstract. They give an elegant turn and cast of sentiment; they raise the attention above sordid interest, and dispose it for reflection and tranquillity, and they fill the mind with beautiful images, and furnish agreeable subjects for conversation.

An intimate acquaintance with the works of genius, nature, and art, as displayed in their most sublime and beautiful forms, has an immediate tendency to expand the faculties of the mind, and to give the most engaging views of mankind and of Providence. By the cultivation of Taste upon such principles, the connexion between the feelings of natural and moral beauty is discovered, and the pleasures derived from the eye and the ear terminate in the enlargement of the heart, and the improvement of the social affections ; and thus is the cultivation of Taste carried to its greatest height. Hence, as from being conversant with the works of the best masters, the man of taste dislikes whatever is unnatural, affected, and vulgar, and is gratified only with what is beautiful and fair ; so he will be disposed, by a congeniality of sentiment, to reject whatever is depraved and vicious, and to adhere to that which is noble and honourable. The sensibility of the excellence of art and nature is favourable to the enjoyment of *moral* beauty ; for if the mind has been duly improved by education, and is not corrupted by intercourse with the world, the heart may be softened, the manners refined, and the temper sweetened by a well-directed attention to the arts of imitation. The improvement of Taste, therefore, will, if thus pursued, answer the most valuable of all purposes, and not only form a refined critic and connoisseur, but give to magnanimity, generosity, and every amiable quality, their proper ascendancy above meanness, depravity, and selfishness. It will not only impart much of that refinement

refinement and elegance of thinking, which characterised an ADDISON, a SPENCE, a GRAY, and a REYNOLDS; but contribute to the love and the improvement of those virtues, which were the fairest ornaments of their minds.

CLASS THE SIXTH.

THE SOURCES OF OUR NATIONAL
PROSPERITY, &c.

CHAPTER I.

IN recommending Agriculture and Commerce, as proper subjects of attention in a general scheme of liberal education, I am not only justified by the importance of the subjects themselves, but by the institutions of respectable seminaries, and the opinions of writers of high character. The art of agriculture has been for several years publicly taught in the Swedish, Danish, and some of the German universities; and I am informed, that a professorship for this purpose has been founded in the University of Edinburgh. In addition to the advice of Milton and Locke, I have moreover the concurrence of the present Bishop of Landaff. His remarks upon the best mode of improving academical education are so much to the purpose, that my readers, I doubt not, will be pleased with the following remarks.

“ I have

“ I have spent the best part of my life in the University of Cambridge ; and have not been wholly incurious in observing what, I thought, were either excellencies or defects in our mode of education. I mean not, upon this occasion, to enlarge upon either, but simply to take the liberty of suggesting an hint, which has often engaged my attention. The hint respects—the utility of an academic institution for instructing young men of rank and fortune in the elements of agriculture ; in the principles of commerce ; and in the knowledge of our manufactures.

“ This kind of study would agreeably solicit, and might probably secure, the attention of that part of our youth, which, in being exempted from the discipline of scholastic exercises, has abundant leisure for other pursuits ; which, in being born to opulence, is (I will say) unhappily deprived of one of the strongest incentives to intellectual exertion—narrowness of fortune ;—it would prepare them for becoming, at a proper age, intelligent legislators of their country ; and it would inspire them with such a taste for husbandry, as might constitute the chief felicity of their future lives.

“ When the treaty with Ireland was agitated in parliament, the utility of a comprehensive knowledge of our commerce and manufactures was perfectly understood, both by those who possessed it, and by those who lamented their want of it. The commerce of wool, corn, cotton, hemp, flax, silk, beer,

beer, wine, spirits, salts, sugar, tar, glass, earthen ware, iron, copper, lead, tin, &c. &c. are subjects of great importance to this country; and it is humbly apprehended, that they are subjects also on which there are but few persons in either house of parliament, who have had an opportunity of being instructed during the course of their education.

“Of all the amusements or employments in which country gentlemen are engaged, that of superintending with intelligence the cultivation of a farm is one of the most useful to the community, as well as to the individual who applies himself to it. Great improvements have been made in Agriculture within the last fifty years: there is a chaos of printed information on the subject, which wants to be digested into form, in order to be made generally useful. The several agricultural societies, which have been established by gentlemen in different parts of the kingdom, have done great service; we owe to their endeavours, and to the patriotic exertions of one deserving citizen^t, the present flourishing condition of our husbandry; but far more gentlemen would, probably, have been induced to turn their thoughts that way, and all of them with better prospects of succeeding in their inquiries, had they, in their youth, been carefully instructed in the principles of vegetation, in the chemical qualities of soils, and in the natures and uses of different manures.”

^t Arthur Young, Esq.

Agriculture.

The pursuits of Agriculture are connected with that love of the country, which may be called an universal passion. The charms of nature are there fully displayed ; and every mind, which is not debased by vicious refinement, or enslaved by irregular desires, is eager to enjoy them. A principle so universally felt has never failed to call forth the powers of genius ; and writers of all ages have expatiated on rural scenes and occupations with the most lively satisfaction. Every poet more especially claims the country as his peculiar province : from thence he derives the most beautiful and striking descriptions, and is enabled to represent those various prospects of nature, which are so highly gratifying to every ingenuous mind.

But rural scenes and occupations, considered as conducive to the support and comforts of life, become far more important and useful objects of speculation, than merely as they please the eye by their beauty, or charm the fancy by the images, with which they enrich it. They lead to inquiries, which are worthy of the particular attention of every lover of his native country ; inasmuch as they present a view of the powers of art combined with those of nature to improve the soil, to the greatest degree of fertility ; and thus minister to the subsistence, the increase, and the happiness of mankind.

Agricul.

Agriculture may properly be considered with respect to the *eminent writers* upon the subject, and the *countries* where it has chiefly flourished—its *superiority to commerce* as a source of permanent abundance and power—the *improvements* made since it has occupied the attention of English gentlemen—the *condition* of the husbandman—its *comparative state* in France, Ireland, America, and England—and *the best methods* for its farther advancement in our island.

Agriculture is the art of causing the earth to produce the various kinds of vegetables in the greatest perfection and plenty. It is not only essential to the well-being of society, in a rude and unpolished state; but is equally requisite in every stage of its refinement. As an incitement to its constant and uniform pursuit, it repays the exertions of mankind with regular and abundant returns. From the remotest ages, it has been esteemed worthy of general attention. The simplicity of ancient manners rendered it an object not inconsistent with the rank and situation of persons of the greatest eminence. Gideon, the renowned champion and judge of Israel, quitted the threshing-floor to preside in the public assembly of his countrymen: and Cincinnatus, the conqueror of the Volsci, left his plough to lead the Roman armies to battle; and afterwards declined the rewards gained by his victories, to return to his native fields. In modern times this occupation has been held in no less esteem. General Washington, the late illustrious

trious president of the United States of America, found the most pleasing relaxation of public business in the management of his own estate. The Emperor of China, at the beginning of every spring, goes to plough in person, attended by the princes and grandees of his empire; he celebrates the close of the harvest among his subjects, and creates the best farmer in his dominions a Mandarin. Many English Gentlemen, and some of the highest rank, take a lively interest in all rural improvements, and preside at the annual meetings of agriculturists with no less reputation to themselves, than encouragement to the art.

I. Agriculture, which from its obvious utility must necessarily claim the general attention of mankind, in proportion as they are civilized, has been not less distinguished as a subject to exercise the talents of eminent authors. In various ages many have written to explain its principles, and celebrate its excellence. Some have adorned it with the elegance of fancy, and others have methodized it with the precision of rules. *Hesiod* was one of the earliest of the Grecian poets to sing the praises of the plough, and in a work nearly coeval with the *Iliad* itself, has combined with the principles of the art many curious observations on the seasons most propitious to its various employments. At a period of society, when its advantages were better understood, and its practice more generally diffused, *Xenophon* expatiated in his *Economics*, on the importance of Agriculture, and described its influence

fluence on the prosperity of the arts, and the advancement of civilization. *Cicero* was so much pleased with the sweet simplicity and beneficial tendency of this Treatise, that he translated it into Latin; and in his admirable Dialogue on Old Age, *Cato*, the principal speaker, recommends it to the great *Scipio*, as the most powerful inducement to persevere in his favourite pursuit. *Virgil* has ennobled the subject with the dignity of Latin verse; and in his *Georgics*, the most correct and most original of his works, has described at large the rural occupations of his countrymen, the cultivation of land, the seasons most favourable to tillage, and the nature of grazing and planting. He has adorned every branch of his subject with refined and striking beauties of composition; and has so fully collected the best observations and choicest maxims of antiquity, as to render it almost a superfluous task to consult the works of other authors relative to the progress, which his predecessors had made in this art.

At the revival of learning in England, *Fitzherbert* published a very useful work on the nature of soils, and the laws of vegetation. *Hartlib*, the correspondent of *Milton*, distinguished himself so much by his proposals for rural improvements, as to attract the notice of *Cromwell*, who rewarded his publication with a liberal pension. In the preface to the excellent work intitled *his Legacy*, he laments that no public director of husbandry was established in England, by the authority of government;

ment; and that the English had not adopted the Flemish method of letting farms upon improvement. *Evelyn*, the author of the pleasing work on Forest Trees, afterwards endeavoured to inspire his countrymen with a love of Agriculture; and he was followed by the ingenious *Jethro Tull*. The former, by his excellent Treatises on soils and planting, and the latter by showing the superior advantages of the drill-husbandry, excited numbers to reduce their plans to practice.

The various societies, particularly those established in England, Ireland, France, Italy, and Germany, have since contributed to suggest and disseminate a variety of improvements. To three writers, who have lately favoured the world with their publications, our country is much indebted. *Marshall* has, by his close attention to the particular occupations of the country, proceeded to many valuable conclusions, highly useful to the farmer; and *Anderson* has shown great accuracy of observation in his remarks on particular soils and plants, and in his proposal of trying experiments upon an extensive scale. *Young* has far surpassed his predecessors in the compass and variety of his researches, as he has reduced the directions of others to practice, suggested many plans of improvement in every branch of farming, and added much to the general stock of knowledge, by actual observations on foreign countries, as well as on the different counties in the united kingdom.

Much to the honour of this art, we find that all the nations of old, which were celebrated for their progress in it, were free and independent. In the most glorious times of Greece, and in the most virtuous period of the Roman republic, Agriculture flourished, and was held in great estimation. The face of nature has felt the bad effects, which have arisen from the degeneracy of this heroic people; for ever since idleness, despotism, and superstition have spread their pernicious influence over Italy, the rural arts have declined, and the fertile fields of the Campagna de Roma, which once supplied vast multitudes with employment and sustenance, are now changed into barren wastes, and pestilential marshes. It was under a mild government the inhabitants of the Netherlands carried the cultivation of the soil to a degree of perfection, which was long unattained by any of the other states of Europe. From them our island has received the most useful instruction; and such has been the activity and persevering spirit of the English, as in many respects to surpass the ingenious and industrious people, to whom they are indebted for these advantages.

Agriculture has been gradually improving since the errors of ancient husbandry have been corrected, and vulgar superstitious traditions exploded. A solid and rational system of the art has been founded upon clear and intelligible principles. The application of natural history and chemistry to it has greatly accelerated our improvements, in proportion

as inquiries have been made into the causes of the fertility and barrenness of land; the food and nutriment of vegetables, the nature of soils, the best modes of meliorating them with various manures; and, more than all, by the introduction of foreign feeds, and adopting from the nations whence they were borrowed, their methods of cultivation. The connexion between causes and effects is now better understood; and a degree of ability, management, and skill, far superior to the practice of former times, is exercised in the various departments of Agriculture. In the process of husbandry, as it has been conducted for some time in Great Britain, little is left to accident; and the bigotted regard to ancient customs gives place to the dictates of good sense, and more correct views of utility. The intelligent farmer, profiting by the wider diffusion of knowledge, which is the characteristic of the present age, derives more assistance from the philosopher, the naturalist, and the chemist, than his ancestors could obtain; and is furnished with the useful principles of every art in the least degree conducive to the improvement and success of his occupations. As this knowledge has been applied to practice, improvements have been gradually made, and extended from one county to another; until the country has assumed a new aspect, and its general appearance, which two centuries ago abounded in barren wastes, interspersed with gloomy forests, now exhibits, in beautifully varied scenes, long ranges of fields fruitful in every kind of vegetable

table production, and rich and verdant pastures filled with thriving flocks and herds.

II. The most obvious advantage of Agriculture is, that it supplies mankind with the greatest quantity of provision. Savage tribes subsist by hunting wild animals in large forests; and thus a few people, comparatively speaking, gain from an extensive tract of waste land a precarious and scanty support. The next step in the progress of society, is to breed and rear flocks and herds of tame animals, which is the state of a people just emerging from barbarism, as was the case of the Greeks in the times described by Homer. This progress of society to the condition of shepherds is a more certain and permanent mode of procuring subsistence, and has greatly the advantage over the hunting state. Another step places mankind in a situation, which gives them the full benefit of their industry and ingenuity, at the same time that it more abundantly ministers to their wants. This last and greatest improvement consists in tillage, which entirely changes the quality of food, and increases the quantity in a vast proportion.

It is obvious therefore to conclude, that no other method of procuring the means of subsistence can be so well adapted to an increase of population. This is a point of the greatest political importance; for, provided a people be industrious and well employed, they cannot increase with too much rapidity.

dity. Monarchs may vainly imagine that their glory consists in extent of territory, the pomp of state, the greatness of their revenues, or the terror of their arms: but an accurate knowledge of mankind will convince them, that true glory can only arise from ruling a people, who free, from the weight of oppression, and reaping the fruits of their industry, are induced to multiply their species from a desire of communicating to their descendants the blessings of security and comfort, which themselves enjoy. Under such circumstances a great population is the safeguard of the country, as well as the glory of the king. Every encouragement which can be given to it is strictly conformable to the constitution of nature, as she seems to have provided for an indefinite increase of mankind. And as the fruitfulness of the earth is likewise indefinite, there seems to be no natural obstacle to their united advancement, far beyond the point they have at present reached in Great Britain, and most other parts of the world".

Commerce

" " In every little opening of the mountains near Leon, wherever a valley spreads wide enough to afford pasture for some cows, we find a village of ten, fifteen, or twenty houses; their numbers always bearing proportion to the quantity of food: and as the human race every where makes strong efforts to increase, we find the inhabitants climbing the steep ascent, to cultivate every spot where the plough can pass." Townsend's Travels in Spain, vol. i. p. 382. " The Israelites doubled their numbers every twenty-seven years, or nearly within that term. The population of North America doubles every five and twenty years, but in some provinces every fif-

Commerce is of a precarious and fluctuating nature; particularly as it takes its rise from artificial as well as natural wants. Merchants remove from place to place according to the comparative cheapness of labour, and their prospects of improving their capitals. Grass now grows in those streets of Antwerp and Ghent, which three centuries ago were thronged with merchants from all parts of Europe. The manufactures of wool, at present the boast of English trade, after the fall of the Western empire, were wrought in Venice, Pisa, Florence, and Lucca; from thence they were transferred to the Netherlands; and adopted about two hundred years ago by our ancestors. Some branches of this trade have lately migrated from Norwich into Prussia and Germany. The cotton mills of Manchester and the Northern counties have been equalled, if not exceeded, within these few years, by those of Scotland. But where Agriculture is made the great object of pursuit, the inhabitants of a country are not exposed to such vicissitudes; their employments are less transient; and they are not under the necessity of having recourse to other

teen years. In modern Europe it requires, according to Dr. Smith, five hundred years to double the number of its inhabitants. The reason of this is obvious, if we call to mind the principles on which depend the propagation of the species, and the causes by which its progress may be retarded, or altogether limited. These are, 1. The want of food. 2. Diseases. 3. Want of commerce. 4. War in all its forms. 5. Superstitious vows &c. In proportion as you remove these obstacles your population will advance." Townsend, vol. ii. p. 362.

places,

places, for the supply of their immediate wants. They are not exposed to the extortion or the hostility of their neighbours, who have it not in their power to impoverish them by selling corn at an exorbitant price, or reduce them to famine by withholding it^x. Many of the States of America, which are almost entirely occupied by farmers, are independent of all the rest of the world. Maritime and commercial nations may indeed enjoy all the fruits of other countries; but as the land which produces those fruits is the sole property of the owners of the soil, they can impart or withhold them at pleasure. Agriculture therefore constitutes the only firm and permanent basis of subsistence.

But although Agriculture justly claims the ascendancy over commerce; yet it is a truth founded upon experience, that the only method to encourage Agriculture is to excite other kinds of industry, and afford a ready market for the exchange of corn for other commodities. If the inhabitants of a country have no motive for raising more grain than is barely sufficient for their own consumption, they will not always raise even a necessary quantity; and a bad seed-time, or an unfavourable harvest, will be followed by a famine. This was frequently the case before the bounty was granted by Parliament upon the exportation of corn in the year 1689.

^x Priestley on History, p. 365.

III. The business of Agriculture was for a long time confined to those, who, from their contracted sphere of life, were exposed to the imputation of ignorance and narrowness of mind. Gentlemen of independent fortune and liberal education for some time past have attended to rural occupations, so that its various branches are conducted immediately under their own inspection and management. Placing no longer an implicit confidence in their servants, they are become the superintendants of their own farms, and take a pleasure in introducing every improvement and every new machine for the purpose of accelerating and abridging labour. The public spirit of some, and the curiosity of others, induce them to vie with their neighbours; and this emulation is greatly increased by the annual competitions, which take place in several counties. The encouragement given to the mechanic arts, and the different treatment of soils, feeds, and plants, are likely to be of the greatest public utility. From this attention of country gentlemen to farming, more experiments have been tried, to which the finances of the less opulent farmer are not adequate; more discoveries made, and more systematic and useful plans adopted within the last thirty years, than were practised for a century before.

Thus has the art been highly advanced with the improving spirit of the times, as persons of the higher ranks of life have turned their attention to it, and given new dignity to its occupations. The
Country

Country Gentleman has indeed every motive to make Agriculture his principal pursuit, as it is equally conducive to his interest, his health, and his pleasure.

For thee the long and verdant lawn is spread,
For thee the forest rears his branching head;
For thee the meadows spring, the harvests shine,
And every joy the country yields, is thine.^y

In different counties a great variety is observable in the conduct of farmers, in their courses of crops, their custom of fallowing, and of abridging labour by mechanical improvements. Every year produces some favourite schemes, which have been practised with success upon some particular spots of ground under peculiar circumstances. These schemes it may be imprudent to reject altogether, although repeated trials may be necessary to induce the cautious to adopt them. He who speculates with a view to forming general principles, must not stop to consider local peculiarities, or partial experiments; but ought to consider husbandry in its grand outlines, and then descend regularly to the detail of circumstances. He surveys the richest and best cultivated counties, and remarks in what proportion the lands are every year productive either of corn or some other vegetables, preparatory to its cultivation. He inquires for what reason sheep and cattle are spread over the face of a fertile

^y Mant's Poems, page 35.

country in such great numbers; whether manure does not depend upon them, and corn upon manure. If the answer to such questions be satisfactory, then the farmers are entitled to his praise: and their practice is a tacit censure of the ignorance, prejudices, idleness, and want of spirit in the inhabitants of other places, where fallowing abounds, where manure is purchased in small quantities, where sheep are few, and in bad condition; and a good soil is so far exhausted as to produce no other crop, than scanty ears of rye or barley, amidst a luxuriant produce of all kinds of weeds.

It is not easy to determine whether the *old* or the *new* husbandry be preferable in every county: with regard to this point, the climate, the situation of particular land, the soil, the skill and dexterity in the management of the implements, and new machines, in addition to the comparative expence in raising crops must be accurately attended to, before a decision can in all cases be made. Drill-husbandry has been well-described as “the practice of a garden introduced into the field.” The difference of expence ought to be no objection to its introduction, as the expence will in general be far more than repaid by the superior goodness and value of the crops.

Nature has an immediate tendency to the multiplication of the human species, and her influence is more particularly visible in the country, where pure air, plain diet, and the regularity of rural employments

ployments conduce to this great end. The country is the prolific seminary of cities. Accordingly we find that emigration advances from the former to the latter. Villages are the nurseries of mankind, and their inhabitants can alone make up for the vast and rapid consumption of the human species, caused by the luxury, celibacy, prostitution, and impure atmosphere of large towns, and particularly of the metropolis. In addition to the checks, which population receives from great cities, may be enumerated the inequality of the ranks and fortunes of men, which in some countries may for ever prevent an increase of inhabitants from being considerable, provided the upper ranks have it in their power to prevent the combinations of the lower, and to keep property in the same state. The depopulation of Italy in the later times of the Roman empire, was occasioned by the great inequality of ranks, the prevalence of luxury, the number of country-seats, and arable land being converted into unproductive pleasure-grounds.

Excessive population, if unattended by adequate means of support, so far from proving a blessing to a country, is calculated to produce the most deplorable scenes of wretchedness. The unhappy extremity, to which a people are reduced by its excess, is evident among the Chinese, where the inhuman custom of exposing children prevails, in consequence of the difficulty of supplying them with food; and every species of vermin is fought to sustain the existence of wretches perishing with hunger.

hunger. In France, a few years past, the price of labour was so low, as scarcely to save a workman from starving; and that business was performed badly by three men, for which in England one is found sufficient. France, before the Revolution, exhibited to the eye of the traveller all the misery and inactivity of a half-starved and idle people. From such instances it is evident, that a nation possesses its proper number of inhabitants, when they are commensurate with the quantity of food, which it either produces, or can constantly purchase with its manufactures from its neighbours; and when it is not liable to be exposed to famine by the failure of a harvest, as has sometimes been the case in France. The difficulty of procuring subsistence therefore constitutes a check to population, and operates as a great obstacle to marriage; which will seldom fail to take place, when there is a reasonable prospect of provision for a family.

IV. The *Peasant*, although he may be disregarded by the superficial, or viewed with contempt by the vain, will be placed by those who judge of things, not by their external appearance, but their intrinsic worth, in the most useful class of mankind. His occupation is conducive not only to the prosperity, but to the existence of society. He prepares the ground, scatters the seed, and reaps the harvest of those vegetable productions, which form the principal support of human life. For this end he braves the rigour of the winter, endures the heat of summer, and patiently supports all the vicissitudes of

of weather. He is placed at a distance from most of the objects, which can excite his ambition, or satisfy his curiosity. His life is one unvaried course of hardy exertion, and persevering toil. The vigour of his youth is exhausted by labour; and what are the hopes and consolations of his age? Sicknefs may deprive him of the opportunity of providing the least supply for the closing years of life; and the gloomy confinement of a workhouse, or the scanty pittance of parochial help, is his last and only resource. By his condition may be estimated the prosperity of a nation; the real opulence, strength, and security of the public are proportionate to the comfort which he enjoys; and his wretchedness is the sure criterion of a bad administration of government. The distance between him and the nobleman, whose soil he tills, may appear very great; but the occupations of the peasant are connected with his plenty, affluence, and magnificence, by ties, which, however they may escape common and superficial observation, are yet strong and numerous. The enjoyments of the great are procured by the sweat of his brow, and by his toils they are enabled to run the round of pleasure and dissipation. The prince or the peer, who is surrounded by a numerous retinue, and whose luxury is supplied by the produce of every quarter of the globe, will do well to recollect, that he is every day indebted to the accumulated labour of the lower classes of society, of which the poorest, and the most unhappy peasant contributes his share^z.

^z A. Young.

And here humanity as well as justice may ask, what ought to be the recompence of so useful and valuable a member of society? He ought certainly to be rendered as comfortable as his situation of life will allow. And the circumstance of their dependence upon his exertions ought to induce his employers to contribute all in their power to alleviate his necessities, and reward his labours. That country gentleman will deserve to be celebrated like a Howard, and a Hanway, who, reducing a plan to practice, which does not benefit the lower classes of the community too much at the expence of the higher, shall give to the husbandman a stronger interest in the constitution of his country; enlarge the circle of his comforts; supply his board with more provision; clothe him more effectually against the inclemency of the seasons; and enable him to lay up a competent supply for the day of sickness, and the infirmities of age.

CHAPTER II.

The Subject continued.

OUR inquiries are carried on to consider the comparative state of Agriculture, with a view to ascertain in what country it has the superiority, and to what causes that superiority may be ascribed. The field of comparison cannot be very extensive; since it does not include very cold or very hot countries. The nature of the climate will determine its just limits, direct our attention to the degrees of latitude, which are the same, or nearly the same, as those, which include the island of Great Britain.

Various advantages seem to conspire to carry the Agriculture of *France* to a greater degree of perfection than our own. Among these advantages it is not intended to enumerate the forty societies of Agriculture, which, considering the state of the art in France, at no very distant period, are really contemptible^z. Its soft and genial climate is highly propitious to the growth of corn. Nature has been peculiarly kind to this delightful country, in giving such prolific powers to its soil. The pro-

^z This statement is principally taken from A. Young's Travels in France in 1789, and from the answers obtained to my inquiries in the Isle of France, Picardy and Normandy in 1791.

portion of bad land in England to the whole kingdom is greater than in France.

Yet, destitute of these advantages, *England* can boast of a produce of corn far superior to that of France. The average growth of wheat and rye is twenty-four bushels upon each acre, which forms a vast superiority to eighteen, the growth of France, and the care taken in dressing the corn in England makes the difference at least twenty-five to eighteen, and perhaps rather more. The superiority of our crops of barley and oats is doubly greater than those of wheat and rye, and may justify us in fixing the proportion of the general produce of English corn at twenty-eight to eighteen. Ten millions of acres supply more corn than fifteen; consequently a territory of an hundred millions of acres more than equals another of 150 millions^a. It is from considering the effects of a superior growth upon population, commerce, and wealth, that we can easily and satisfactorily account for the power of England, which has so frequently ventured to engage in wars with a country far more extensive, populous, and more favoured by nature. It proves how much the labour and expence bestowed by man can effect to raise the prolific powers of the earth, and ought to be an incentive to the farmer in one place to adopt the management of ground, and to introduce the crops, which are found to succeed in another.

^a Young's France, p. 341.

In proportion to the size of the two islands, *Ireland* is more generally cultivated than England, as it has less waste land, and more natural fertility. But the kindness of nature is so little seconded, that few tracks can yield less pleasure, than those which the agriculturist surveys in that country. We are indeed apt to attribute much efficacy to the genial soil of England, without considering that some of the most improved spots are almost entirely indebted to the industry and art of the inhabitants for their various productions. The state of Irish Agriculture admits of scarcely any comparison, as the land is in general extremely unimproved; the Irish farmer may be indebted to nature for a crop, but is under little obligation to the industry, management, or expence bestowed upon his lands by his predecessors or himself. Ireland is capable of all the high cultivation of England, and would amply repay the proprietors for the capital employed for her improvement. This important object, so conducive to her prosperity, might in time be secured, if the public spirit, or the sense of private advantage, should induce the opulent landholders to reside upon their estates, and by their own example give a sanction to agricultural improvements; and if they would relieve the tenant from the oppression and extortion of middle men and stewards, and let their lands upon the same conditions as in England.

In the *United States of America*, Agriculture in all its branches is pursued with more general ardour, than in any other quarter of the globe, as it em-

employs nine-tenths of the inhabitants. The climate is in general extremely favourable, and the produce is such, as, if accurately reported, must surprise a farmer who lives on this side the Atlantic. It is asserted by Morfe, in his work on Geography, that "in the province of Kentucky the lands will produce fifty or sixty, and in some instances it is affirmed a hundred bushels of good corn an acre. In common the land will produce thirty bushels of wheat or rye an acre ^b." We may form an idea of the general fertility of North America from the supplies which it can furnish, without any injury to its own inhabitants, when we are alarmed by the apprehension of scarcity. But the price of the American flour and grain, owing to their inferior quality, is generally less than that of the produce of England. And it is supposed by competent judges that the Americans are far from having acquired any great degree of skill in the management of their lands; nor have they as yet adopted those improvements, introduced those machines, such as the drill plough, and the threshing machine, or expended those large sums upon their farms, which would tend to advance their fertility, and place them more upon an equality with the agriculturists of Britain.

On pursuing our inquiries still farther, we shall discover the principal causes which contribute to give Great Britain such manifest pre-eminence over France, Ireland, and America;—a pre-eminence

^b Morfe's America, p. 405. He probably means Indian corn.

which

which is acknowledged by all candid foreigners, and induces them to repair to this island to be spectators of our improvements, with a view to the introduction of them into their own countries.

With respect to soil and climate, our advantages are certainly not so great as those enjoyed by the French. If however we have not their genial sunshine and warmth, which give to the grapes of Burgundy and Champagne their rich colour and delicious flavour; we are not so subject to those autumnal hurricanes and storms, which frustrate the labour of the husbandman, and destroy the harvests of whole districts at once. To these the central provinces are chiefly exposed; and no year passes without many places suffering to a degree, of which we have no conception, and on the whole to the amount of no inconsiderable proportion of the whole produce of the kingdom^c. If in a part of Artois, in the beautiful plains of Alsace, and upon the borders of the Garonne, their soils be richer, ours are found to be highly improveable; and it is from this power of improvement that English husbandry derives its excellence. If nature here be assiduously courted, she will return the gifts of her admirers with a liberal hand; and if diligence, skill, and liberality combine to second her efforts, she will crown their labours with success, and scatter among them the blessings of abundance.

^c Young, p. 296.

1. The first cause to be considered is the *influence of political freedom*. Our government encourages every person to make his best exertions, in full confidence that his labours and risks will prove, not only highly beneficial to himself and his family, but will be secured to them in succeeding times. In some mechanical arts, in which the labour is short, and there is a prospect of an immediate return, the subjects of monarchical or revolutionary France might arrive at a great degree of eminence. They might form the beautiful china of the Seve, finish the elegant watches of Paris, or weave the rich tapestry of the Gobelins : but in the tardy process of Agriculture, those who carry them to a great extent, and have the spirit to hazard much property for a considerable time, can never be induced to embark in them without full confidence in the stability of government. Our Agriculture is also much indebted to the uniform management of land, however it may differ in its quality. Where the soil is rich, nature will do much for herself; but where it is coarse and poor, the English farmer is not discouraged, but, by diligence and a copious supply of manure, he succeeds in raising a crop. The sands of Norfolk and the fens of Lincolnshire are made to produce turnips, oats, and barley; and they are as well cultivated as the richest land in other counties. The same principle governs districts which widely differ in the nature of the soil; and the hand of persevering industry guides the plough, and scatters the seed in them all.

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In France, wherever nature was peculiarly benign, the farmer was accustomed to give to her prolific efforts some assistance; but where she was unkind, no extraordinary labour or expence was bestowed to supply the defect. The poverty of the common people in Italy and Spain may be attributed to the richness of the land, and the genial nature of the climate. There Agriculture is an easy art; the impoverished ground is left fallow; and the warmth of the sun, and the mild temperature of the air, quickly recruit its exhausted powers. The poor husbandmen, who were the slaves of their landlords, gained only a scanty pittance for their toils: the luxuriant vineyards of Champagne and Burgundy, highly profitable to their owners, were cultivated by peasants, who had scarcely raiment or bread.

The comparison which has been drawn between England and France, is not intended to refer to the *present* condition of the latter, as it is not very easy, at this moment, to give an accurate and general statement of its agriculture. The Consular Government took some very useful methods to ascertain the actual state of the Republic, probably with a view to its general internal improvement; and the statistical reports made in the year 1803, by the Prefects relative to twenty-six departments, appear to have been drawn up with considerable care and precision^d.

^d I mention the number of those I have been able to inspect. The reports from the departments of la *Sarthe* and the *Bas Rhin* are the most circumstantial.

II. There is no country, in which *the arrangement of crops* is better adapted to arable land, than in England. This is a circumstance, which distinguishes the agricultural knowledge of the present age as much as any other improvement whatever; and it marks the line of distinction between a good and a bad farmer, and a country well or ill cultivated. So great is its importance, that all other articles in comparison are insignificant, because the general produce of the land depends so materially upon it. Of this mode of arrangement, the French were totally ignorant; for some of the richest lands in the Pays de Caux, in Normandy, and the Isle of France were frequently left fallow, for the purpose of forcing scanty crops of wheat, and spring corn of a bad quality. The province of Picardy, very often condemned to fallows, and manured perhaps not more than once in five or six years, produced only one tolerable harvest in three. In England, flocks of sheep are thought requisite for the produce of corn, and the crops are regulated with an immediate view to their summer and winter sustenance. It is found by general experience, that by such courses regularly pursued land will yield a harvest double to that which it would otherwise produce.

Amid these courses of crops, in which various kinds of pulse, grass, and vegetables are successfully introduced, nothing deserves more attention than the cultivation of *turnips*; and no agriculturist ever deserved better of his country, than he
who

who first introduced them into the fields of England. No plant is better suited to the climate, flourishes more even in the northern parts of it, or contributes more to the fertility of land. This root is the glory of the English husbandry. Its great excellence consists in nourishing and improving the soil, preparing it for the reception of wheat, and furnishing nutritious food for all sorts of cattle. Its introduction was of far more value, than the acquisition of a colony, or the establishment of a new branch of commerce. For this inestimable vegetable, and the improvements resulting from its cultivation, our island is indebted to Flanders, the fruitful parent of our commerce, agriculture, and manufactories. The first effectual trial to raise turnips in England was happily made in a county, the most proper of all others for their reception, as the soil of *Norfolk* is in general light and sandy. The place of its earliest cultivation is constantly kept in the public view, as it is found, that the seed sent to distant places is apt to degenerate; so that those who wish to produce this excellent vegetable in perfection are obliged to procure fresh supplies of Norfolk seed. Slow is the progress even of obvious improvement;—its introduction into the neighbouring counties was tardy; and not more than half a century has elapsed, since it was first planted in Suffolk and Essex. Its adoption is now very general throughout Great Britain: and it may be remarked, that in proportion as turnips are cultivated, and their utility is more fully understood,

the general system of husbandry becomes more advantageous and complete.

III. An additional cause of the pre-eminence of our Agriculture, not less striking than the foregoing, is *the expence bestowed upon land*, as well as upon every necessary improvement. This is evident in the sums laid out for manuring, irrigating, draining, and fencing, as well as for the improvements in the breeds of cattle, the introduction of new implements of husbandry, the durable materials of common implements, and the commodiousness of farm-houses, and all their appendages. To these circumstances great attention is paid, because it becomes every day a truth more generally understood, that the productive state of Agriculture depends materially upon the money employed in its various branches. No other people have ventured to invest such large capitals in their lands; and foreign nations are as yet unacquainted with the invaluable secret, that treasures, thus buried in the earth, become the most abundant sources of wealth^e.

Our

^e “ The capital employed in husbandry in the British Isles is considerably greater than is employed in France. It surely is not necessary to observe in this age, that the productive state of Agriculture in a country depends much more upon the capital employed, than on any other circumstance whatever: and since ours is larger than that of France, though in the possession of fifteen millions of people only, (for that of France is to be connected

Our agriculturists are daily improving in knowledge, and daily applying that knowledge to practice. They are well skilled, as we have before observed, in the nature of different soils, and understand the best methods of meliorating them by various manures, and the increase of their produce by regular courses of crops. In short, they display a degree of diligence, spirit, and liberality in all rural improvements hitherto discovered, not to be equalled by any nation in the world.

IV. Still however, even a careless observer may remark, that we have not yet reached the summit

ned with twenty-five or twenty-six millions) the British dominions ought to be essentially richer and more powerful than France."

"I have calculated the capital of the farmers in France in all the provinces, and the medium of my notes is forty shillings an acre. A similar calculation of the capital employed in the husbandry of England gives four pounds per acre. By capital is meant the average of all farms, all stocks, and all periods of leases. Add thirty shillings for the less quantity of permanent improvements, and we have the total of three pounds ten shillings for the inferiority of French to English capital employed in Agriculture, which upon 131,000,000 of acres forms a deficiency of 458,500,000*l.* sterling."

"With such an immense superiority in the produce of corn, the more obvious surprise should have been, that the resources of England compared with those of France were not yet more decisive. But it is to be observed, that there are other articles of culture, to which recourse must be had for an explanation. Vines are an immense object in the cultivation of France, and yield all the advantages, and even superior ones, to those afforded by the assiduous culture of corn in England, &c." See Young's France, p. 341. 343. 430.

of

of excellence. Our ancestors have made a great progress in this art; yet much still remains for us and our posterity to accomplish. It will be the work of many succeeding generations to carry to their utmost bounds the natural advantages of Great Britain. Where the ground is already cultivated, it is in many places capable of higher improvement; and where it is suffered to lie waste, its gloomy, wild, and unfruitful appearance is a tacit reproach of the public negligence. Inclosures have been found highly beneficial; and the practice of making them ought to become universal. The kingdom is deformed in many parts by immense heaths, moors, commons, marshes, and fens, amounting, according to some computations, to ten millions of acres. The extent of uncultivated ground in the vicinity of London is a glaring disgrace to our country. The tillage of any considerable proportion of this land would secure the nation against much of the evil of deficient crops; and the plenty of one district might supply upon a larger scale the wants of another. All the profits arising from the grain raised upon such lands would accrue to the public, as well as the wages of the husbandmen employed; and the increase of the stock of labour would contribute to remove the causes of emigration, idleness and beggary. Waste lands, wherever the soil will admit of cultivation, ought to be inclosed, and converted into farms of various sizes. The practicability of such a plan will be evident on our reflecting, that where corn now grows in great abundance, many even of the present generation
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can remember wild heaths and barren wastes. Thus the public supply of provisions would in due time be greatly augmented, and the inhabitants of this kingdom would be enabled to make new exertions in proportion to the increase of cultivated land^f.

To carry such improvements into execution, every encouragement ought to be given by the Legislature; and for what purposes could the public money be better employed, than in works of such general and obvious utility, all no less tending to the great increase of provisions, for an augmenting population, than to strengthen the arm of government, and promote the welfare and happiness of

^f "Let it only be supposed that every field in England, of the same original quality with those in the neighbourhood of the metropolis, and consequently capable of the same fertility, were by a like management made to yield an equal produce; and it may be asserted, I believe with truth, that the quantity of human provision raised in the island would be increased five-fold." Paley, p. 590.

"It is observed in Mr. King's calculations, the accuracy of which has never yet been questioned, that of thirty-nine millions of acres in England, ten, or more than a fourth, consisted in heaths, moors, mountains, and barren lands; and this, exclusive of woods, forests, parks, commons, roads, &c. There have since that time been many improvements made. But it will surely be allowed no improbable assertion, that one fiftieth part may yet be gained from the unprofitable state in which it is. This, though purchased by the nation, would be no expence; for money expended by the public, for the immediate service of the public, cannot with propriety be called *expence*." Campbell, Pol. Surv. vol. ii. p. 732.

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the people? If a tenth part only of the money expended in the wars of the last forty years had been applied to the improvement of land, it is difficult to calculate what would have been the influence of such an expenditure upon the *solid* prosperity of the nation.

The tillage of land, before waste and unfruitful, is in every point of view an acquisition of territory highly beneficial. Unlike distant colonies, which furnish a perpetual pretext for hostility, lands newly cultivated excite no jealousy in the neighbouring states, and can furnish no grounds for those frequent wars, which are the severest scourges of mankind, and disgrace the professors of a religion founded for the express purpose of disseminating benevolence, and establishing peace.

The advice of projectors, when they direct their ingenuity to a subject so important as that we are discussing, calls for the most serious attention. Few plans recommended by them seem better calculated to carry the rural arts to perfection, than the establishment of experimental farms. These ought to be formed in different counties, and the expences defrayed by government. Here the nature of particular soils, as adapted to various modes and processes of cultivation, the peculiar qualities and comparative value of grasses and plants, might be ascertained. Here the best and most economical mode of rearing and fattening all kinds of useful animals might be tried, as well as the methods of
abridging

abridging labour by improvements in machinery. Our country can boast of academies of painting, and societies for the encouragement of arts; but yet it wants *a practical institution* of this kind, conducted upon *an extensive and liberal scale*. By collecting and comparing the experiments made in these various places, great advantages might be gained: and for this purpose, a periodical publication of transactions would be highly useful, as a repository and vehicle of observations. By the admission of honorary members, this society might likewise carry on an extensive correspondence, include the patrons of the agricultural interest in all parts of the world, and compare their different processes, discoveries, and plans of operation for the purpose of general utility.

Abundance of food is the only wealth of the industrious poor, as other possessions, consisting in ample revenues, splendid houses and equipages, exclusively belong to the rich. Upon the quantity and cheapness of the common necessaries of life, the health, strength, and industry of the people, and of course the general comfort of society, must ever depend. It is therefore the duty, as well as the interest of government, to take every possible method to prevent their dearth, by guarding against their scarcity. Manufactures and commerce are the great sources of wealth; and in order to prevent them from being dried up and exhausted, it is necessary that Agriculture should be an object of the first attention, and that its produce should

be attainable at a cheap rate. It is an excellent observation, "that neither Agriculture nor Trade can flourish, where the general ease does not begin with the class of labourers^s."

Nature will not suffer her laws to be violated: the call of the appetites is more importunate, than the sollicitations of fashion; and the means of subsistence must be secured to mankind before they go in search of superfluities. The arts of necessity are antecedent to those of elegance.

From the preceding observations may be deduced some of the most useful principles of *Political Economy*. The real power and opulence of a nation consist in *the number of its inhabitants well supplied with the necessaries of life*;—*subsistence is the proper measure of population,—and the earth is the source of subsistence*. All other means of wealth and dominion, such as *commerce, abundance of the precious metals, and extent of colonies*, promote the *true prosperity* of a state, only in proportion as they encourage AGRICULTURE, which is *the most valuable of the arts, as well as the most solid and most durable basis of Plenty, Power, and Prosperity*.

^s Priestley's Lectures on History, p. 367.

CHAPTER III.

Commerce

IS well described to be “an operation, by which the wealth or work either of individuals or of societies may be exchanged by merchants for an equivalent, proper for supplying every want without interruption to industry, or check to consumption².” This subject will be considered with an immediate reference to the particular state and circumstances of our own country.

The natural advantages enjoyed by an ISLAND are superior to those which belong to any country, which forms a part of a continent. The soil of the former is commonly more rich, fertile, and various, than that of the latter. The sea affords the inhabitants security against the invasion of enemies, and furnishes them with inexhaustible supplies of provision. The fisheries on their coasts dispose islanders to navigation, and hence they are led to establish an extensive intercourse with the most distant places. From their general propensity to

² See Encyclop. Britann. vol. ii. p. 195. Priestley's Lectures on History, p. 386.

maritime affairs, they acquire a spirit of enterprise, and distinguish themselves by their courage in the maintenance of their own customs and forms of government; and frequently gain a permanent ascendancy over neighbouring and even remote states.

To these general advantages, which were possessed in ancient times by Crete, and at a less distant period by Rhodes, Great Britain adds some, which are peculiar to herself. Her line of sea-coast is very extensive in proportion to the size of the whole island, and abounds with deep bays and capacious harbours. Her ports are convenient, and good for anchorage. Those on the western side of the island are nearly as well situated for the southern trade, as the French; and they are far superior in number, safety, and depth of water. With respect to the northern and the Baltic trades, the situation of France before the last and present war, when it had not the command of the Coasts of Holland, admitted of no comparison. Rivers and canals afford the convenience of water-carriage to the inland counties of England, and not only connect them with each other by the internal circulation of trade, but afford an easy and cheap conveyance to the ocean^o.

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¹ "The sea coast of Britain from the figure in some measure of the island, but chiefly from the inlets of the sea, and the very irregular indented line which forms its shore, comprehends, allowing for these sinuosities, at least 800 marine leagues. In this

These various advantages have for successive ages been carefully improved, as the great works of public utility, completed in our sea-port towns, sufficiently attest. Harbours have been deepened, piers and moles have been erected to break the force of the waves, and form a safe asylum for ships. Wet and dry docks have been constructed for the building and reparation of ships, and commodious quays to unload their freights. In every place where necessity requires such aid, light-houses have been raised upon the lofty cliffs, to guide the mariner in the darkest nights along the dangerous coasts. All these expensive and laborious works have been completed to promote navigation in every direction, as Liverpool, Bristol, Whitby, Yarmouth, Ramsgate, and Falmouth, fully prove; so that British vessels can sail from some port or other by every wind that blows; and the ships of foreign nations are invited, by such conveniences, to bring their numerous articles of commerce to every part of our shores. As London takes the precedence in all works wherein grandeur is united to utility, so it is conspicuous for these improvements. The ground now occupied by the *West India Docks* was a few years ago a mere marsh. Here is now formed an immense harbour, and such lofty and spacious edifices are erected around it, that when the whole plan is completed, it will vie

this respect it is (was) superior to France, and equal to Spain and Portugal, though Britain is not half the size of that noble Peninsula which forms the last." Campbell's Political Survey, vol. i. p. 274.

with some of the grandest efforts of antient or modern times. Towns, Ports, and Aqueducts, have been erected by Emperors and Kings, but few of them can be compared with this commercial wonder; which has been in a short time effected by a body of English merchants. Such various monuments of utility prove the incessant energy of industry; and that in every instance, where the influence of government is propitious to the spirit of enterprize, those difficulties of nature and situation may be conquered, which past ages regarded as insurmountable.

The ardent and indefatigable diligence, which raises Great Britain above the rest of Europe, is visible in every place, distinguished by manufactories, mines, fisheries, and agriculture. In Manchester, Glasgow, and Norwich, the fabrication of cotton, wool, and flax, into cloths, linens, and stuffs, supplies multitudes of all ages with the means of subsistence. In Birmingham and Sheffield, iron and other metals are worked for every purpose of use and ornament. The hardy inhabitants of the North and West labour in the productive mines of coals and metals; while the mariners either explore their own, or venture to the icy seas of Greenland, and the distant recesses of the Southern ocean, for various kinds of fish.

This survey of the active industry of our countrymen, so much diversified, and operating in such various directions for the benefit of themselves and

the community at large, must naturally awaken our curiosity to inquire, I. into the *advantages*; II. the *principles*; and, III. the *comparative state* of that commerce, which their labours enable the British merchant to extend to every part of the globe.

I. The great spring of Commerce is mutual want of the necessary articles of life, or the supposition of want, with respect to luxuries and superfluities. This principle has the same operation, whether the farmer immediately sell his corn to the manufacturer, or whether the disposal of manufactures be more circuitous. The farmer, for instance, may not be in want of cloth, and therefore will not give corn to the weaver. In such a case the weaver sends his cloth to a foreign market, where it is exchanged for the wine of Portugal, or the tea of China, which, when imported, the farmer readily purchases. The machine of Commerce may appear vast and complicated, its movements may be many, and its operations circuitous; but the main spring *necessity*, either real or imaginary, is invariably the same.

Commerce is the source of wealth to the merchant; but its advantages are far from being confined to himself. He supplies the wants of one country by importing the articles of another, and gives a value to superfluities, which they could not otherwise possess. He increases the revenue of the state, and thus contributes to its general opulence

and grandeur; and it preserves the independence of the British empire, by the strong support and large supplies afforded to our maritime strength. Hence we acquire a decided superiority over every other nation, and give the inhabitants of remote as well as neighbouring countries the most convincing proofs of our riches, prosperity, and power. No commercial country is long exposed to the evils of its own barrenness or necessities; and the riches of one place are soon made the common stock of all others. Commerce is the bond of general society, which unites the most distant nations by the constant reciprocation of good offices. By extending the sphere of activity through various parts of the earth, by satisfying the real and multiplying the imaginary wants of mankind, and by quickening their thirst for enjoyments, it becomes the most lively and most general principle, which actuates the world. Under its attractive and beneficent influence the whole world becomes one city, and all nations one family.

The influence likewise, which it produces upon the *manners* of mankind, renders it a more interesting subject of observation. A regular intercourse subsisting between different nations contributes to cure the mind of many absurd and hurtful prejudices. Trade carried on between persons of different sects and religions has a tendency to lessen the opposition of opinion, which was formerly the cause of hatred and hostility. It promotes benevolence of disposition, inasmuch as it extends the
connexions

connexions and intercourse of society, and increases the love of peace and order, without which its operations cannot be carried on. The merchant engaged in honourable traffic is the friend of mankind, and is occupied for the benefit of his necessitous fellow-creatures.

Commerce will be found to have had no small influence in calming the minds of the nations of the earth into a state of complacency and peace. The sudden revolutions, heroic manners, and extraordinary events of ancient times resulted from that ferocity of temper and unsocial spirit, which Commerce tends to remove. Iron is now a material article of traffic, which was formerly employed only as an instrument of destruction. The states of Europe are brought nearly upon a level by this intercourse; a spirit of general emulation is excited, and it is justly remarked, that those who possess the most extensive trade command the source of opulence and power. Through the bounty of nature most nations have some superfluity to exchange for the productions of others; and the expectation of gaining advantages, which they cannot otherwise secure, turns their ingenuity and labours into many different channels. Hence the arts of necessity and elegance are diligently cultivated, invention is roused to find new materials for foreign consumption, a competition arises between rival manufacturers and artists, and Commerce employs and unites the families of the earth, from the frozen regions of Russia to the burning sands of Africa;

Africa;—from the isles of Britain to the populous and vast dominions of China.

From this intercourse results an effect, which is peculiarly advantageous to the less polished and civilized nations. By the frequent communications, which are necessary for the purpose of bartering commodities with the cultivated European, they are made acquainted with useful arts and improvements, and are taught the value of science, and the blessings of Christianity. Thus by degrees the great disparity between man and man is destroyed, useful knowledge is diffeminated, and the inhabitants of the different quarters of the world arrive at that equality of power, which awes ambitious nations into due respect and reverence for the general rights of mankind.

From Commerce we likewise derive a more enlarged knowledge of the terraqueous globe, and its inhabitants. We become correctly acquainted with the animals, vegetables, and minerals of every soil and climate, and the natural history of all countries, no longer debased by exaggeration and fable, acquires the value of precision and truth. We enlarge our acquaintance with mankind, are enabled to estimate their different manners, remark how modes of life and habits of thinking are varied, according to their different situations, and how the passions and dispositions are modified;—the Laplander, like his climate, is dull, gloomy, and cold; the Asiatic, under the influence

influence of an ardent sun, is fiery, sensual, and vindictive. Thus are we enabled, as we become more acquainted with the general faculties and powers of man, to complete our theories as to his true nature and constitution; and, as we see him under every variation of climate and government, we can form a comparative estimate of his disposition, manners, and civil polity, founded upon the sure basis of fact and experience.

The beneficial effects of Commerce have been no less visible in conciliating the affections of the natives of the same country to each other. During the prevalence of the feudal system, our ancestors lived in a state of suspicion, servile dependence, and war; and knew scarcely any distinctions, except those, which subsisted between the different professions of the church and the army, or the more servile relations of lords and vassals. But at present, the various ranks of society are connected by closer ties, and entertain greater cordiality and esteem for each other, as their intercourse is more frequent, and the superior refinements of society have quickened the sense of mutual want, and mutual dependence.

In Britain indeed Commerce has acquired a degree of rank and dignity elsewhere unknown. Many of those engaged in it have done and continue to do it honour by the excellence of their education, and the liberality of their minds. Among those who do credit to the relations of domestic
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life—those who are distinguished in the senate, for public spirit and useful knowledge—those who at the call of distress come forward with prompt and liberal assistance, who is more conspicuous than the ENGLISH MERCHANT?

Attention to this subject will open a view of the intimate connexion subsisting between the *landed* and the *trading* interests. They can never be considered as clashing and distinct, without a manifest injury to both, and an ignorance of their respective effects and operations. How far each has contributed to improve the other, is evident from considering the comparative value of land, at a period antecedent to the present flourishing state of Commerce. The fee simple of estates is at least four times as valuable at present, as it was two centuries ago. This, among many others that might be adduced, is a decisive proof, that country gentlemen are in reality as much interested in the prosperity of trade, as even the merchants themselves. In short, Agriculture and Commerce have the same direct influence in promoting national abundance and prosperity. These effects they certainly will produce so long as the government of a country imposes no heavy burthen upon their exertions; but encouraging the enterprizing spirit of individuals, who embark large fortunes in various concerns, promotes the interest of both merchants and agriculturists at the same time, and maintains it in such due proportion, that the advancement of

of the one does not tend to the depression of the other.

A concern of such magnitude as Commerce, including such numerous articles, carried on by such various means, and extended to such different climates, must necessarily be liable to many inconveniences, to which agriculture is not subject. Those who traffic in foreign countries subject themselves to the dangers of the sea, and the inclemency and diseases of both cold and hot climates. In consequence of trading with the natives of countries less civilized and refined than themselves, and more weak and defenceless, they are tempted to practise the arts of chicanery, and to have recourse to acts of injustice and violence, and thus gradually become dead to the feelings of humanity, and regardless of the admonitions of religion. However incompatible Commerce may appear to be with the work of destruction, it is often the cause of war. The desire of a small island, or the inconsiderable trade of a remote coast, are sufficient motives to rouse a rival nation to arms. These wars are fatal and destructive, in proportion to the number of the foreign settlements, which belong to the great maritime powers of Europe. They spread like the wasting flames of a conflagration, involve every quarter of the globe in alarm and danger, and expose the lives and property of the unoffending natives to the attacks of unprovoked enemies. Some of the articles imported from foreign countries are such as make it doubtful whether they
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ought to be encouraged. The rum of the West Indies, which is the fruit of the toil and sufferings of some slaves, as well as the bribe given to Africans for the purchase of others, is too often used, when brought to the mother-country, as the means of intoxication. Sugar, the produce of those islands where war, pestilence, and hurricanes contend for the mastery in the destruction of man and his labours, ought to be rejected from our articles of luxury, until it is produced by the toil of freemen.

A sagacious writer has remarked, that in observing the advances of commerce “in its *first* stages, we shall find that it supplies mutual necessities, prevents mutual wants, extends mutual knowledge, eradicates mutual prejudice, and spreads mutual humanity. In its *middle*, and more advanced period, it provides conveniencies, increases numbers, coins money, gives birth to arts and sciences, creates equal laws, diffuses general plenty, and general happiness. If we view it in its *third* and highest stage, we shall see it change its nature and effects. It brings in superfluity, and vast wealth, begets avarice, gross luxury, or effeminate refinement among the higher ranks, together with general loss of principle^k.”

II. The great principles of Commerce are the result of sound reason, and the united experience

* Brown's Estimate of the Manners of the Times, p. 153.

of enlightened merchants. A short statement of some of them may tend to illustrate the nature of British traffic, and lead to important inquiries upon this subject in general.

Of all articles of Commerce, materials produced and manufactured at home are the most profitable. This is evident, because the whole labour for their cultivation, manufacture, and exportation, is divided among people of our own nation, and they exclusively share all the profits. Wool, which is the staple commodity of the kingdom, is made into broad cloth, which, before it reaches the consumer, undergoes a great variety of operations, and passes through an hundred different hands: so that there is no produce whatever, of which the benefits can be more widely diffused among the industrious part of the community. Suppose the value of English wool produced in one year to amount to three millions; the expence of working it up into various articles to be nine, its total value, when manufactured, will amount to twelve. Suppose we export annually to the value of three millions; and the number of persons maintained by this manufacture to be a million. Let it be considered, that these persons expend what they earn in all the necessaries of life, and that the procuring such necessaries is a source of profit and employment to the other members of the community; and then we may judge, what an immense addition is made to the natural stock of industry and gain by this valuable article, even without taking

taking into the account the failors employed to export the various articles into which it is wrought, and the artificers of machines used to accelerate many parts of the manufactures.

The next in value are raw materials imported from other countries, manufactured in England, and then reserved for domestic use, or exported for foreign consumption. Their importation precludes the want of foreign manufactures, prevents the balance of trade from inclining against us, and secures all the profit arising from passing entirely through the hands of our own countrymen. A short recital of some of these articles selected from a large number may be useful. *Cotton*, the produce of the East and West Indies, is manufactured into candle-wicks, stockings, cottons, dimities, fustians, calicoes, muslins, and all kinds of Manchester goods, many of which are sent to the markets in the Baltic and in North America. *Hemp*, brought from the north of Europe, is made into all kinds of sacking, cloth, sails, cordage, cables, and rigging for ships. *Raw silk*, brought from Italy, the East Indies and China, is died, spun, and thrown, and then wove into pieces of broad or narrow silks, stockings, ribbons, fringes, &c. From the *cork tree* of Portugal the inner rind is scaled off, in order to stow pipes of wine in our ships. This article is cut into corks of all sizes, which are exported in great quantities. With the *rushes* of the Dutch marshes, planted and attended as the English might be, were our poor as industrious, our
casks

casks and buckets are made water-proof. *Linen*, purchased in the degraded form of old rags, is made into various kinds of elegant stationary, and resold to foreigners. So attentive is Commerce to every article even the most apparently worthless, which can contribute to the use of man. What to the superficial may appear most contemptible, she converts to various uses, and by the occupation which they produce, gives subsistence to numbers of families.

Of all raw materials imported, no one is convertible to so many uses as iron: much is brought from Sweden. After giving employment to numerous trades it re-appears in nautical instruments, ship-stoves, and anchors, cannon, gun-barrels, ram-rods, chains, crows, nails, rivets, hoops, hammers, gates, saws, sickles, scythes, screws, fire-grates, fire-irons, and various other articles familiar to the observation of the reader.

When it is converted into steel, it assumes the polished forms of swords, razors, knives, scissars, needles, buttons, surgeons instruments, locks and keys, watch-chains, springs, &c. The price of these, almost entirely arising from the labour and skill employed upon them, is immense, when compared with that of the unwrought material.

Iron assumes no form more useful than that of knives and forks. These were to be seen with the marks of English makers upon them at many tables in France. But to give a better instance of the great

great distance to which our manufactures are carried, Captain Cook saw with pleasure English knives and forks upon the table of the Russian Governor at Kamskatka.

It is a received maxim in Commerce, which may at first sight appear paradoxical, considering the high estimation, in which the precious metals are held, that it is better to take commodities of foreign growth in return for our own than to be repaid with gold and silver. Although these metals are the ultimate objects of all Commerce; yet to obtain them in so short and easy a manner would not augment the stock of the nation, in comparison to what is added by our taking raw materials, which will furnish employment for multitudes, and many of which are exported to the same countries, from whence they were originally brought. If, for instance, we take money for the broad cloth exported to Spain, the immediate profit may be considerable; but it establishes no lucrative exchange of commodities. But if we take wool in return, there is a new fund for the labour of the manufacturer, and an additional profit to be derived from its importation. The fleeces therefore of Andalusia are much more valuable objects of importation to the English merchant, if he consults the greatest advantage of his country, than the silver of Potosi, or the gold of Peru.

From these propositions may be drawn a corollary, that the utility of the various branches of foreign
Commerce,

Commerce, is measured by the number of persons, which each branch employs and supports. It is evident, therefore, that the exchange of wrought goods for raw materials is much more lucrative than the exchange of one species of wrought goods for another; and that of course the exchange of our own raw materials for the wrought goods of other nations is extremely disadvantageous. If, for example, ten thousand Englishmen be employed to make cutlery ware for the French, and five thousand French be employed in cambrics for the English, then the French must ultimately pay the five thousand men so employed—or, in other words, maintain them at their sole expence. It is true, that the value of the respective commodities makes a considerable difference in the sum paid to balance accounts: yet the great principle, that it is not *money* received, but *labour* properly recompensed, which constitutes the true wealth of nations, will always demonstrate, that the balance of trade is in favour of that country, which employs the greatest number of its subjects.

That nation will be both opulent and formidable, which conveys its own manufactures, or commodities of its own procuring, to foreign ports in its own vessels. For thus are secured all the branches of industry to its inhabitants, which can spring from any article of their trade, as it gives employment to the manufacturer and the sailor, with all their numerous train of dependent artisans, and ensures to them of course every profit and advantage,

tage, which their occupations can in any degree produce. This tends to the full establishment of navigation, and opens the wide and boundless ocean to its exertions. The Dutch were formerly the principal carriers for all the nations of Europe. This employment alone raised them to their late condition of wealth and prosperity. Such employment cannot however in itself be regarded as a permanent basis of power, and it is less profitable than either the domestic or foreign trade of consumption. It is also very precarious, because in proportion as other nations improve the advantages afforded by the convenience of their own harbours, and increase the quantity of their own productions, they will convey their own goods in their own ships. Such has been for some time the practice of England, as by far the most considerable part of British goods is exported in British vessels. Of the utility of this measure, our ancestors were early sensible, as is evident from an act of parliament made in the reign of Richard II. The celebrated *Act of Navigation*, passed in the reign of Charles II. shewed more fully the sentiments, which the nation entertained of the importance of this practice. The immediate object of this act was to check the naval power of Holland. Considered as to its ultimate tendency, it was the wisest law which could possibly be framed, and has obtained the commendation of all persons, who have correct views of our commercial interests¹.

Under

¹The celebrated Pensionary de Witt expressed himself in such

Under the influence of parliamentary encouragement, the advances made in the art of navigation and in the construction of ships have been equally remarkable. Attention to these objects has conducted to the improvement of the royal navy, which has gradually increased in proportion to the increase of merchant ships. By this circumstance, the advantages of Commerce, considered as a great national object, are fully displayed; for upon the number of sailors, and the quantity of shipping, depend the defence and security which Britain finds in her great and formidable fleets, and the glorious pre-eminence she maintains among the nations of Europe as **THE FIRST OF MARITIME POWERS.**

The British Sailor, if he be considered with a view to our political and commercial interests, is an object of great regard and importance. At all seasons he braves the dangers of the ocean to convey to his native country the produce of distant climes: sometimes he is exposed to the frost of Iceland, and sometimes to the scorching sun of the

such a manner, as to amount to an indirect approbation of this act, and a close insight into its effects. Speaking of the expediency of Holland's easing their own, and charging foreign manufactures with duties, he remarks, "That in the same year 1660, the English settled their rates of customs and convoy-money so well to favour their own people, and to burthen all foreign masters of ships and merchants, so that it is to be feared the English merchants may in time bereave the Dutch of much of their trade." Anderson, vol. ii. p. 110.

Tropics. When his country sends him forth to war, he hears the roar of the hostile cannon with delight, and the distance of the enemy is the sole cause of his apprehension. Danger is his strongest incentive to action: in the midst of flames and of death are displayed his characteristic dexterity, courage, and presence of mind. In the moment of victory, to which he looks with confidence as his birth-right, he represses his exultation by the feelings of humanity, and snatches his prostrate foe from the waves. In him are centered the best hopes of public safety, independence, and glory; for under the gracious protection of Providence, he is the guardian of our commerce, and the defender of our island. Let then a generous nation either multiply such retreats as those of Greenwich for the reception of aged sailors; or afford them such relief against poverty in their own houses, as may preclude the necessity of any of them begging alms through a country preserved in its present flourishing state by their toil, their blood, and their valour.

As a nation may rise to opulence and power by acting upon such principles as those before established; so may it decline and be impoverished, if the scale be suffered to turn against her, by encouraging the commodities of other countries to the prejudice of her own. This will happen when articles of mere luxury are imported, and not taken in exchange for our own productions.

Much

Much more disadvantageous is that trade, which introduces an article not only consumed among us, but which hinders the consumption of the like quantity of our own, as is the case with brandy and geneva, which diminish the consumption of malt, and are therefore with great propriety subjected by Government to high duties. But that is undoubtedly the most injurious of every species of traffic, which supplies the same goods we can produce ourselves, especially if we can make a sufficient quantity for our own consumption. This is the case with cloth, silks, china, and muslins, the manufactories for which have been established, with great labour and expence, in various parts of England.

To enumerate other maxims of Commerce is to transcribe the works of the most approved authors, who have written at large upon the subject. The most important of them all may be compressed into one grand summary. That species of Commerce, which makes money flow *most copiously*, keeps public and private credit *high*; which gives to the merchant a *reasonable profit*, and to the labourer and the artisan a *comfortable subsistence* in return for their industry; which increases the value and the rent of *land*, and produces a considerable revenue to the *state*, must always be esteemed the most valuable: since these are the *only indubitable marks*, by which the advantage of any public or private trade can be demonstrated. And it may be proper to observe, that the same criteria, which

assist us in judging by what kinds of trade we gain or lose, will likewise direct us what treaties of Commerce are beneficial, or the contrary.

“ No certain method has been as yet pointed out to ascertain the *balance* of trade. It can never be known from the exports and imports for a few years, even if these statements could be absolutely depended upon. The rate of exchange, which has been called a political barometer, would be really so, if Commerce only operated upon it: but this not being the case, it can be no rule at all. The Custom-house books are no unerring guides; whatever is smuggled does not appear; some exports are beyond the truth, and some things are not rated at all. The plenty or scarcity of money cannot for many reasons be relied on. After all, our foreign traffic hath been for a series of years increasing: if the general balance had been against us, we must by this time have been brought very low, if not totally undone. But as every thing we see proves the contrary, it may serve to convince us; and this the rather, because foreigners shew their sense of the matter by the sums they entrust in the public funds^m. ”

As British Commerce has increased in importance, it has in a proportionable degree engaged the attention of the legislature. The exclusive privileges of trading to particular places have

^m Campbell's Political Survey, vol. ii. p. 705.

been

been given to companies of merchants; and rewards have been held out to encourage the productions of our own country, and exclude those of foreigners. Accordingly penalties have been laid both upon the importation of such foreign articles as can be produced at home, and upon the importation of such articles from countries, where the balance of trade is against us. The exportation of our own produce has been encouraged by drawbacks, bounties, advantageous treaties of Commerce with foreign states, and the establishment of colonies.

The privileges granted to chartered companies by Government have undoubtedly encouraged a spirit of monopoly, and been too favourable to the exclusive interests of a few merchants, at the expence of the public at large. By the charter of the East India Company, the rest of the nation are excluded from trading beyond the Cape of Good Hope; and, by the charter of the Turkey Company, they are prohibited from having any commerce with the dominions of the Grand Signior. Thus the interests of the whole are sacrificed to the emolument of a few. A small number of merchants confine their exports and imports to as small a quantity as they please. The natural consequence is, that they confine the markets to themselves, and they can both buy and sell at their own price. As charters confer exclusive privileges, they operate as a check upon all those, who come not within their limits, and in their own nature produce

duce an established monopoly. They are therefore inconsistent with a received maxim, which suggests the expediency of a competition to render Trade advantageous to the public.

“ All restrictions on Trade are naught: and no company whatever, whether they trade in a joint stock, or under regulations, can be for public good, except it may be easy for all, or any of his Majesty's subjects, to be admitted into them, at any time, for a very inconsiderable fineⁿ. ”

Still, however, it must be acknowledged, as a vindication of those, who have instituted the present system of Commerce, that they were obliged to adapt their measures to the circumstances of particular times, and to assimilate their plans to those of other nations, in order to secure equal advantages. No individual merchant was bold enough to embark his whole property in the adventurous issue of a distant Trade; whereas numbers were inclined to associate for that purpose, because the particular sums, which formed the joint stock, were not so large as to injure materially any of the individuals concerned, if the enterprize should have been unsuccessful. Government gave them a charter as a recompence for their risk; and, regarding only their immediate benefit, looked not forward to a time, when the mercantile spirit would

ⁿ Sir J. Child.—This principle is adopted by Smith, and very fully treated in his *Wealth of Nations*, vol. i. p. 201. vol. iii. p. 110.

be more widely diffused, and British subjects would complain, that any other limits, except those of nature, were set to their exertions.

But it seems at present to be admitted as a settled principle, that commercial companies are injurious, rather than beneficial to the public, as they trade at much more expence than individuals, and give rise to illegal traffic, which is proved by the number of neutral vessels, that carry English goods to foreign ports. The Americans are sensible of these inconveniences. They have no chartered Companies, and yet they can carry on a lucrative trade to the East Indies and to China, and all other parts of the world.

III. That we derive great advantages from our extensive Commerce is evident from a comparison between the former and present state of our public and private affairs. The wool of England, which at present constitutes the staple commodity of our Traffic, was in former times sent abroad, and returned to this country in a manufactured state. Germany furnished our ancestors with hardware; at present the hardware of Sheffield and Birmingham has an unrivalled market in various parts of Europe, Asia, and America. The common interest of money was twelve per cent.; and it at present fluctuates, in time of peace, from three to five, which it cannot legally exceed. Land was sold for no more than twelve years purchase, which can now be disposed of for thirty. For the elegant

articles of looking-glasses, paper, and silk, the pride and boast of France; for the carpets of Turkey; for the porcelain and the beautiful and fantastic ornaments of China; for the clocks and watches of Germany; and the glass of Italy; our workmen can substitute such productions, as are little, if at all inferior in materials or execution, in elegance of design, or cheapness. The coal-trade, which for ages was considered merely as a local convenience, is now become the basis of all the northern coasting trade; and nurses and maintains many more seamen than before that period were supported by the whole Commerce of the nation. The streams of Traffic have been turned into new channels and now fertilize our soil much more than they formerly enriched the nations of the continent. We excel those, by whom we have been taught the various arts of manufacture; for all countries attest, by their regular and extensive dealings with us, the ingenuity, expedition, and dexterity of our workmen.

“The discovery of America made an essential change in the state of Europe. By opening a new and inexhaustible market to all the commodities of Europe, it gave occasion to new divisions of labour and improvement of art, which in the narrow circle of the ancient Commerce could never have taken place for want of a market, to take off the greater part of their produce. The productive powers of labour were improved, and its produce increased in all

all the different countries of Europe, and together with it, the real revenue and wealth of the inhabitants^o."

The population not only of great cities, but of villages, has increased particularly in the manufacturing counties of the North, with the encreasing means of employment. Compared with their present magnitude and splendour, both in public and private, the English cities of former ages were villages, and houses were little better than cottages. The luxuries of life are increased by the importation of the fruits of every climate, and the house of every gentleman is a repository of choice productions of the most distant countries. The NAVY OF ENGLAND, which once consisted of small vessels, is now composed of the largest ships. To the islands at the extremities of the globe it conveys protection, or it threatens hostility. Formerly it was thought powerful, when found to be superior to any *one* of the maritime states of the Continent, but it is now more than a match for them *all*. Its preeminence let France and Spain and Holland confess; for if their historians have been in any degree faithful to the cause of truth, their own annals may instruct them, how much and how often the Navy of Great Britain has risen triumphant over their separate attacks, in the ages that are past. It was a privilege reserved for the English of this generation to witness her more extraor-

• Wealth of Nations, vol. ii. p. 170.

dinary power in repelling their most vigorous efforts, when leagued in formidable confederacy to subdue her, exhausted as they vainly imagined, by the war with her American Colonies. Braving their utmost fury, her soldiers commanded by the gallant EL-LIOT, defied their enemies from the rock of Gibraltar; and the garrison, neither weakened nor dismayed by a siege of four nearly years, was thrice relieved, in defiance of fleets more numerous than our own. The defeat of a Spanish and afterwards of a French squadron enabled RODNEY, the conqueror of Langara and of De Grasse, to bear his triumphant flag from the Mediterranean sea to the West Indies. Nor was less advantage taken of the opportunities afforded by the *late* war to display our maritime glory. The single force of Britain was again opposed to France, to Spain, and to Holland: and yet their fleets were in every place defeated, and the exploits of HOWE, of JERVIS, of DUNCAN, of WARREN, and other naval heroes, have entitled them to every honour and reward, which their country could bestow upon their most meritorious services.

In this enumeration of naval heroes it would justly be thought, that a writer was both insensible to the most transcendent merit, and regardless of the glory of his country, if he were to omit the name of NELSON. He who wishes to give a detail of his exploits, must transcribe the brightest pages of our naval history; and he who is anxious to do justice to his merits by description, must write with
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the same spirit with which he fought. The laurels which he had won at St. Vincent and at Aboukir, were sufficient to have insured him a lasting renown: with that renown, and the honours which foreign countries had vied with his own in bestowing upon him, he might have retired to the enjoyment of honourable repose for the remainder of his days. But mutilated as he was in person, and covered with wounds, he rose superior to pain. Inactivity afforded no enjoyment to his noble and patriotic spirit, whilst his country continued to be threatened by her inveterate enemies. On his resuming the command of a squadron, his formidable name so dismayed the combined fleets of France and Spain, that they precipitately abandoned their depredations of defenceless islands, and fled before him from the West Indies to Europe. Confiding in their superior numbers, they again ventured to quit their harbour, and their proud and well-disposed line of battle presented to the great Nelson the long fought object of his most ardent wishes. Like the avenging Angel, who

Rides in the whirlwind, and directs the storm;

he executed the plan of his attack, poured forth the irresistible fire of his artillery, and, nobly seconded by the magnanimous COLLINGWOOD AND ALL THE FLEET, assailed the ships of his enemies with an impetuosity, which appeared to them more than human. The effect was something superior to conquest, it was destruction and annihilation—
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it was such a storm of vengeance, that if it be possible for any contest upon the ocean to be decisive, it must clear the atmosphere of war, and restore the fair prospect of peace.

In the moment of this unparalleled success, the Conqueror fell. His loss is irreparable, but his death was transcendently glorious; and such as considering all the circumstances under which it happened, must excite the mixed emotions of sorrow, admiration, and gratitude. While we were slumbering in our beds, or pursuing our pleasures, forgetful of the Providence that watches over us, and the toils, and the sufferings of the Hero, whom it graciously appointed to defend us, that Hero, regardless of his own bodily sufferings, and no less pious than brave, was calling Providence to our aid, he was rushing through the stormy ocean to combat our foes, to secure the enjoyment of our comforts, and was braving death in every form of horror in order to increase the British renown, and support the British Constitution. Let then the generous tears of sorrow flow from every eye for such an irreparable loss, and let the unbounded gratitude of our country pay every honour to his memory. Let the poet sing his triumphs in melodious strains, wherein description will not require the colours of fancy to adorn his exploits; let the painter express on the glowing canvas the various scenes of his naval prowess; and let the sculptor present his image in the animated marble with every emblem that can decorate the sacred monuments

ments of the dead: yet surely the noblest record of his glory will be found in the memory of his countrymen, in the faithful testimony of History, and more than all in the ardour, with which HIS EXAMPLE WILL PROMPT THE YOUTH OF BRITAIN FROM AGE TO AGE TO EMULATE DEEDS WHICH NONE BUT BRITONS CAN EMULATE. May then the name of Nelson be the watchword of battle, and the herald of victory; may its sound, at once terrific and animating, operate like a charm to palsy the arm of our foes, and to inspire every British sailor with intrepidity the most determined, and might irresistible, in every contest in which he shall be engaged to defend old England, and maintain the empire of the Ocean.

Thus does the spirit of our naval institutions continue to promote our success. It is not dependant upon accidental causes, or favourable conjunctures only; but it is maintained in every climate, and in every sea, as a systematic and regular effect, arising from a steady and fixed cause, whether engagements take place between fleets or single ships; whether the scene of action be laid in the British Channel, in the North Seas, on the coast of Spain or of Ireland, in the West Indies or at the mouth of the Nile; whether the enemies be French, Spaniards, or Dutch, the result is the same, and our sailors in all those situations equally force the enemy to strike, and hoist the British colours. Our naval lists can witness that this is no exaggeration; and the same lists can prove, that
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the docks and naval arsenals of our enemies, as they ultimately furnish us with large supplies of ships, contribute with Portsmouth and Plymouth to afford the means of our protection^p.

All

^p *Sir George Bridges Rodney, afterwards Lord Rodney*, on the 16th of January, 1780, with a fleet of 15, defeated the Spanish fleet of 11 ships of the line, under Don Juan de Langara, whom he captured with four sail of the line, destroyed three, and dispersed the rest. In 1782, on the 12th of April, with a fleet of 36, he defeated the French fleet of 32 sail of the line, captured the Admiral the Compte de Grasse, with four sail of the line, and destroyed one. Four more of the same fleet were afterwards taken by Sir S. Hood, in the Mona passage.

Earl Howe, June 1, 1794, with 25, defeated the French fleet of 27 ships of the line, under Admiral Villaret Joyeuse, sunk one, and took six. The fanatical and revolutionary spirit of *New France* did not prevail against the determined bravery of the 'Tars of *Old England*.

Sir John Jervis, afterwards Lord St. Vincent, on the 14th of February, 1797, with only 15 sail of the line, engaged the Spanish fleet of 27 sail, and took four.

Admiral Duncan, afterwards Lord Duncan, October 11th, 1797, near Camperdown, with 16 sail of the line, defeated the Dutch fleet of 15 sail under Admiral de Winter, and took the Admiral and eight sail.

Sir Horatio Nelson, afterwards Lord Nelson, August 1, 1798, with 14 sail of the line, engaged the French fleet of 13 sail in Aboukir Bay, commanded by Admiral Brueys, blew up *L'Orient* the admiral's ship of an 120 guns and 1010 men, and took and destroyed all the rest except two, the *Guillaume Tell*, and the *Genereux*, which were afterwards captured.

Sir John Borlase Warren, Oct. 13, 1798, with a squadron of 9 ships of war, engaged a French squadron of 10 ships of nearly equal force, and took them all except two. Schomburg's Naval Register.

Lord

All these advantages have Britons derived from their insular situation, improved by a spirit of enterprize, and heightened by indefatigable industry. They experience the best effects of Commerce in the refinement of national manners, in public magnificence, and private abundance, united with the ability of defending, both by sea and land, against the attacks of the most formidable invaders, all the blessings conferred by the possession of liberty, and the enjoyment of property. Around the wide compass of the globe, we may look in vain for a country, which has of late years discovered stronger indications of growing prosperity: for have we not great and flourishing towns, filled with commodious private houses, magnificent public buildings, accessible by convenient roads and elegant

Lord Nelson, Oct. 21, 1805, engaged the combined fleets of France and Spain, off Cape Trafalgar. The British force consisted of 27, and that of the enemy of 18 French and 15 Spanish in all 33 of the line, after a tremendous battle of four hours, 19 sail of the enemy were either sunk, destroyed, or taken, and the French Commander in Chief, Admiral Villeneuve, and two Spanish Admirals were made prisoners, one Spanish Admiral was killed, and one badly wounded. The gallant and glorious Nelson was mortally wounded about the middle of the action, but did not expire before he heard of the victory of his fleet.

Sir Richard Strachan, Nov. 2, with four ships afterwards engaged four of the same fleet of equal force, and after a smart action took them *all*. Thus out of the formidable fleet of 33 sail of the line which left the harbour of Cadiz, Oct. 20, only ten remained to our enemies, who by these successive blows, lost more than 20,000 Seamen, four Admirals, one General, and most of their best Officers.

bridges

bridges, surrounded by fields well cultivated, and inhabited by people of all ranks, better supported than those of the same classes in any country in Europe? Have we not an extensive foreign trade, great domestic produce, the circulation of property quick and unembarrassed, an easy and expeditious transfer of property in the national funds, public and private credit high, and a triumphant navy? A combination of such important circumstances necessarily proves a nation to be opulent, prosperous, and powerful.

This is an imperfect description of the actual state of our island. It is however far distant from the point of perfection, to which it is capable of advancing. The capacity it possesses for commercial is as remarkable as that which it claims for agricultural improvement. It is such as calls not only for the attention of the legislature, but of every gentleman, who wishes to advance his own interest, and the general good. The counties of Northumberland, Cumberland, and Westmoreland, are double the province of Holland in extent; but in population they fall short, in the proportion of one to eight. Many parts of Wales show the remains of cities once more populous, and of roads once much more frequented, than at present. The cattle in the pastures, fish in the waters, and metals in the mountains, clearly point out the means of again restoring or exceeding its ancient prosperity; more particularly as the country abounds with water and coals, the two great instruments of manufactures.

Many

Many rivers in different parts of our island ought to be deepened, widened, and made navigable; and many more canals dug to convey various kinds of goods at a small expence to a quick market. These salutary measures would produce the general improvement of all the furrounding country. The timber, which we purchase in foreign countries for ship building, and other purposes, might be raised upon some of those large tracts of land, heaths, commons, and hills, which are suffered to lie waste, in England, Scotland, and Ireland. To a commercial and maritime people, it is an object of the greatest concern to be independent, particularly in this respect, of all foreign supplies.^a

Liberal bounties might prove highly conducive to the promotion of the various fisheries in Scotland, and upon all our other coasts. They are able to supply an almost inexhaustible stock of wholesome and pleasant provision—they furnish a

^a The example of John Christian Curwen, Esq. M.P. of Belle-isle, on Winandermere Lake, is worthy of imitation by every Country Gentleman, who has the means in his power. In 1804, he obtained the Gold Medal from the Society for the encouragement of Arts, Manufactures and Commerce, for planting within the space of half a year the following trees.

Oak.....	271,420	Beech.....	8,120
Larch.....	229,476	Birch.....	21,540
Ash.....	240,800	Alders.....	10,000
Scotch Fir.....	23,600	Elm.....	10,000
Total.....		814,956	

Transactions of the Society, V. 22.

nursery for seamen, and on that account merit every encouragement.

Although its inhabitants have been nearly doubled within a century, yet the island of Great Britain is by no means so populous as its size will admit*. How beneficial, therefore, must any measure be, which induces the natives of this country to remain contented at home, as well as encourages persecuted foreigners to bring useful arts from their own country, and settle in England! The heavy taxes laid by Government upon the most necessary articles of life, as well as the fines imposed by corporations on artificers, are weights laid upon industry which clog the wheels of the commercial machine, and impede its due motion. To prevent the state from losing from such sums being withdrawn from the public treasury, taxes might be laid upon articles of luxury, extravagance, and foreign produce. If our manufactures cannot be sold at a moderate price, they will not long continue to be purchased by foreigners; and if that channel of traffic be dried up, we shall be exposed to depopulation, poverty, and all the unhappy consequences of expiring trade. Our merchants, if oppressed by accumulated taxes, will not be able to stand in competition with those of France, which, not burthened with a national debt in any degree equal to ours, will not only undersell us in

* The Population of England and Wales in 1700 was 5,475,544; in 1801 it amounted to 9,168,713, if the statement in the Sun Paper be correct.

the foreign markets, but will draw English capitals from this country, and encourage emigration by the cheapness of the necessary articles of life. Any alleviation with respect to duties will be so far from a detriment, that it will ultimately prove an advantage to the public revenues. The exertions of the benevolent institution for the *discharge of small debts* ought to be aided by Government, that the imprisonment of the honest peasant and artisan may be shortened, that the public may gain by his industry, and he may be restored to liberty, and to the power of procuring subsistence for his family. *Weights and measures* ought to be brought to the same legal standard all over the kingdom, in order that many of the frauds, which now prevail, may be removed*. The number of ale-houses ought to be diminished, and more strictly regulated, as they are too often the haunt of intemperance: they produce a fondness for dissipation, which is highly injurious to domestic habits of life; and they corrupt the minds and relax the industrious habits of the common people. In the metropolis and many large towns, a benevolence highly creditable to the national character is exercised in the support of hospitals for the *cure* of the various diseases and

* Magna Charta strictly enjoins this standard to be observed, and the regulation is wisely confirmed by acts of Parliament; but do all farmers sell corn by the *Winchester bushel*?

Una fides, pondus, mensura, moneta sit una,

Et status illæsus totius orbis erit.

Budelius de Monetis.

casualties of the poor : but much still remains to be done for the *prevention* of diseases, not only by the promotion of the Vaccine Inoculation, but as new houses are built for the residence of the poor, by making them more commodious and more airy, and by making work-rooms of all kinds spacious, light, and airy. These improvements would contribute to chearfulness as well as to health, and their advantages would be felt in the acceleration of industry.

There exist, without doubt, many causes, which obstruct the execution of such projects; and the great expence, the discord of clashing interests, and the varieties of opinion may long retard their execution. There is, however, sufficient ground to expect, that they may in time be partially if not completely, adopted; since it is a truth, confirmed by experience, that our countrymen want neither ardour nor generosity to come forward, and promote any plan of improvement, whenever there is a probability that any public advantage will result from their united exertions.

The first steps in the useful arts, which are the most difficult, have long ago been taken; their fruits are reaped by society at large, and furnish the greatest incitements to perseverance. Of this kind is the encouragement given to navigable canals, which afford the cheapest and most easy circulation of inland trade. We may reasonably indulge the hope, that many more schemes of the same kind

will

will be realized, because the greatest works, of which we now reap the benefit, once existed only in plans and projects. However at first ridiculed by the ignorant, and discouraged by the idle, they were at last reduced to practice.

It is the happy characteristic of the English to improve upon the arts of other nations; it only remains therefore, that, in order to complete our reputation for this excellence, we adopt every useful scheme, and, by adding our dexterity to the invention of others, make nearer approaches to perfection. The CAPACITY FOR IMPROVEMENT visible in our soil and its productions constitutes the intrinsic excellence of our island; and the industry and public spirit of its inhabitants form some of the most valuable parts of our national character.

These united advantages undeniably prove, upon a comparison with the circumstances of the other nations of Europe, that Great Britain is eminently qualified by art and nature to carry on a widely-extended Commerce; and that she derives every requisite for that purpose from her insular situation, the produce of her lands and plantations, the excellence and variety of her manufactures, the skill and perseverance of her sailors, and the large capitals and enterprizing disposition of her merchants.

CHAPTER IV.

Foreign Travel.

AS travelling is considered a part of education indispensably necessary for all young men of rank and fortune, it becomes a very interesting subject of observation. The most important topics which this subject includes are its *general Advantages*, the consideration of the *Time of Life* when the traveller ought to begin his excursions, the *previous Information* necessary to be acquired, the *Countries most proper* to be visited, the *Objects* most deserving his attention; and what are the *best Effects*, which a tour through foreign countries is calculated to produce upon his *Character and Manners*.

Travelling, as far as it introduces a man into genteel and well-informed society in various parts of the world, and leads to an extensive knowledge of persons and places, expands the mind, removes local prejudices, produces a comparison between our own and foreign countries, satisfies that curiosity and fondness for change, which are natural to mankind, supplies new sources of pleasing and useful information, and conduces to the increase of philanthropy and generosity of sentiment. He who is confined to his own country reads only one page of the
book

Book of human nature, and perpetually studies the same lesson; nor does he understand that completely, from his ignorance of its relative merit, and connexion with all other parts.

If the great and the opulent reside constantly in their own country, they are acquainted only with a luxurious, easy, and enervating mode of living. Foreign Travel enures them to the severity of wholesome hardships; the dangers of the sea, disturbed nights, scanty fare, uncomfortable inns, and bad roads diversify their lives, and place them in new situations. Thus they experience such changes and wants, as render the luxuries which they can command at home, and which otherwise would be insipid, the sources of real enjoyment; and their occasional privations of ease and plenty may increase their sympathy for the lower and more indigent classes of the community.

He who forms his notions of mankind from his constant residence in one and the same place, resembles the child who imagines the heavens are confined to his own limited prospect. The Russians, before the reign of Peter the Great, thought themselves possessed of every national blessing, and held all other people in contempt; so contracted were they in their notions as to believe that their northern mountains encompassed the globe. The untravelled Spaniard may suppose that every Englishman is dressed in boots and a hunting-cap, and that horses and dogs are the constant subjects of his thoughts

and conversation. The untravelled Englishman may imagine that the Spaniard is always wrapt in a cloak, that he is a prey to perpetual jealousy, and is haughty, superstitious, and inactive. These prejudices may probably result, in a considerable degree, from the popular novels of each country; and the Knight of La Mancha and Squire Western may have equally caused them to mistake a particular for a general character, and filled them with false and exaggerated notions of each other. Thus is one nation disposed to draw such a caricature of another, as gives an extravagant as well as an unpleasing idea of the original:—it is only amid the civilities of mutual intercourse and the exchange of friendly offices, that the true and faithful likeness can be taken.^t

“ Not

^t I am happy to find my observations confirmed by my intelligent and judicious friend, the late C. G. Küttner, of Leipzig, whose excellent conversation enlivened many hours of my residence in Oxford, and whose death I have the pain to deplore. “The observations, he says, I have made in the countries themselves, through which I have travelled, in general contradict the characters of those nations, commonly ascribed to them in books, and in conversation. Thus for example in the Spaniards with whom I have been acquainted, I never could find the gravity and stiffness by which that nation is generally supposed to be distinguished. In the Frenchman I have seldom discovered that winning amiableness of disposition, and the high degree of politeness and delicacy inseparable from it, which are universally ascribed to him. I never observed that in his own country, the Englishman was that melancholy, reserved, and gloomy being, for which he is proverbial. The German is by no means the drunkard, or the clownish

“Not long ago the map of the world in China was a square plate, the greater part of which was occupied by the provinces of that vast empire, leaving on its skirts a few obscure corners, into which the wretched remainder of mankind were supposed to be driven. If you have not the use of *our* letters, nor the knowledge of *our* books, said a Mandarin to a European Missionary, what literature, or what science *can* you have?”

Travelling not only divests the mind of such prejudice as this, but gives the highest polish to the manners. This polish however does not result from that excessive attention of the traveller to his deportment and external appearance, which takes off the mind from more important pursuits, and gives a studied air to his general behaviour; but arising originally from true benevolence, and a desire to please, is perfected by intercourse with well-bred and polite company, displays itself upon every oc-

clownish uncivilized brute, that in many countries he is described to be. Am I to suppose, that all the individuals, with whom I was acquainted, were exceptions, and that the observations of so many years were false? Or may it not rather be asserted, that the characters of whole nations, as delineated in *early works*, from which probably they have got into every one's mouth, are incorrect? It is much easier to collect ideas of men and things from books than from real life, and it is inconceivable how ideas once adopted, continue to be propagated for successive ages.”

Kuittner's Travels through Denmark, &c.
in Phillips's Collection, Vol. I. p. 146.

* Ferguson on Civil Society, p. 313.

caſion

caſion in an eaſy and unaffected carriage, an unembarrasſed addreſs, and proper attention to all around him. It has no connexion with effeminacy or formal ceremony, or with that cringing mien and affected complaiſance, which would be inconſiſtent with the ingenuouſneſs, and would leſſen the dignity of a Britiſh gentleman.

The *qualifications* of a young man who wiſhes to reap the greateſt advantages from travelling ought to be ſuch, as may not only exempt him from the imputation of frivolous curioſity, but enable him to derive the greateſt advantages from his excuſions. His mind ought to be improved by a claſſical education: after having gone through a regular courſe of academical inſtruction, he will be well prepared for his intended tour. He ought to poſſeſs a critical knowledge of his own language, to underſtand the laws, conſtitution, and hiſtory of his own country, the forms of proceeding in our courts of juſtice, and the ſtate of our commerce, agriculture, and arts. In ſuch points he ought by no means to be deficient; ſince to make a comparison between other countries and his own, is more particularly requiſite as an obvious and leading object of attention. Such preparatory acquirements will give a young man great advantages in his converſation with foreigners, particularly if they are intelligent and well informed.—They form the baſis of education, upon which travelling may be raiſed, as its highly ornamental and elegant ſuperſtructure.

Let

Let him not hasten to *foreign* countries, before he has satisfied his curiosity by exploring the most interesting parts of his *own*. There are various places, which will fully repay the labour and the expence of his excursions, directed as they may be to different and pleasing objects of pursuit and observation. It is almost superfluous to mention the wild and romantic scenes of Wales, and the North of England—the highly cultivated fields of Norfolk, Berkshire, and Kent—the manufactures and commerce which distinguish London, Liverpool, Manchester, Bristol, Sheffield, and Birmingham, and the large and populous county of York—the beautiful scenes of the Isle of Wight and Derbyshire—and the flourishing cities, fisheries, and manufactories of Scotland. In the course of these domestic excursions, whatever is most beautiful and curious in the fine arts, whatever is deposited in the cabinets of the virtuosi, produced in manufactories, or dug in the mines, should not be disregarded.

“ In those vernal seasons of the year, when the air is calm and pleasant, it were an injury and fullness against nature, not to go out and see her riches, and partake in her rejoicing with heaven and earth. I should not therefore be a persuader to them of studying much then, after two or three years that they have laid their grounds, but to ride out in companies with prudent and steady guides, to all quarters of the land; learning and observing all places of strength, all commodities of building,
and

and of soil for towns and tillage, harbours, and ports for trade; sometimes taking sea as far as to our navy, to learn there also what they can on the practical knowledge of sailing and of sea-fight. These ways would try *all their peculiar gifts of nature*; and if there were any secret excellence among them, would fetch it out, and give it fair opportunities to advance itself by, which could not but mightily redound to the good of the nation, and bring into fashion again those old admired virtues and excellencies, with far more advantage, now in this purity of Christian knowledge^x.

Excursions made for such purposes of improvement will sharpen the appetite of the young traveller for the curiosities of other countries, and place him upon an equality with those inquisitive foreigners, who resort to England. And foreigners indeed cannot give a stronger proof of their discernment and well-directed curiosity. Considering the progress made in arts and sciences, the improvements introduced by Commerce and Agriculture, the number of our flourishing and opulent cities, especially the numerous wonders of our metropolis, the splendour of our court, the variety and ingenuity of our manufactories; the prospects of the country, diversified with all the beauties of nature; the collections of pictures, statues, and natural curiosities; our formidable navy, which is the terror and the admiration of the world; the

^x Milton's Tractate on Education.

character of the men, ingenuous, intelligent, and hospitable; the beauty, delicacy, and modesty of the women—considering all these circumstances, we cannot attribute the satisfaction which they express, during their residence among us, to mere flattery; but may fairly conclude, that it arises in a great degree from the genuine pleasure, which they derive from the survey of one of the most interesting countries in the world.

It is not uncommon to meet with travellers, who are ignorant of many things in their own country, with which they might be acquainted without difficulty. The French are remarkable for this defect, and the English are far from being exempt from it. Too many of our countrymen, who go abroad, are unacquainted not only with places remote from that in which they were born or educated, but with many things, to which they had it in their power to be familiarized from their infancy. An Englishman once discovered very great surprise, when he was informed at Rome, that the church of *St. Stephen's, Walbroke*, in London, was one of the most elegant specimens of modern architecture. Such ignorance exposes the traveller to the ridicule, and perhaps contempt of intelligent foreigners; and may induce him to express his admiration even of inferior productions abroad, where he may be informed that finer specimens of art are to be seen in his own country.

Dean Tucker has given an excellent list of the objects most deserving the attention of a foreigner, who travels in England. Essay on Trade, p. 111.

If

If such qualifications as those before stated be necessary, the traveller cannot of course be very young, when he sets out upon his excursions. All the writers upon the subject, particularly Milton and Locke, concur in reprobating the custom of sending a raw and inexperienced boy abroad. Lord Chesterfield indeed, if his recommendation should carry much weight, appears to countenance it: but we must recollect, that the plan of education, which he proposed for his son, had not only a general view to form a polished man of the world, but to qualify him for a diplomatic department^z. Before a proper age, a youth is exposed to every inconvenience and danger, which can possibly arise from quitting his own country. Previous to that period, the curiosity of a young man is commonly indiscriminate, his judgment is incorrect and hasty; and of course he is inadequate to the just comparison between what he has left at home, and what he observes abroad. It is vainly expected by parents, that the authority of a travelling tutor will be sufficient to prevent the indiscretion of their son, and confine his attention to proper objects of improvement; but admitting every tutor to be a Mentor, every pupil may not be a Telemachus^a.

The

^z Lord Chesterfield's best observations on the use and improvement of travelling are to be found in Letters 79. 98. 150. 235. 256. 265.

^a "Much of the success certainly depends on the choice of the *tutor* or travelling companion. He should be a grave respectable man, of a mature age. A very young man, or a man

of

The gaiety, follies, and voluptuousness of the continent solicit in such captivating forms the inclinations of the young, that they soon become deaf to the calls of admonition. No longer subject to the control of a teacher or a parent, they are eager to follow the dictates of their own inclinations, and to launch out into the wide ocean of indulgence and dissipation. "But if they desire to see other countries at three or four and twenty years of age, not to learn principles, but to enlarge experience, and make wise observations, they will by that time be such as shall deserve the regard and honour of all men where they pass, and the society and friendship of those in all places, who are best and most eminent, and perhaps then other nations will be glad to visit us for their breeding, or else to imitate us in their own country^b."

It should be the particular care of him, who wishes to turn his travelling to the greatest advantage, and to save considerable time and expence, to communicate his intentions of going abroad

of levity, however great his merit, learning, or ingenuity, will not be proper; because he will not have that natural authority and personal dignity, which command attention and obedience. A grave and good man will watch over the morals and religion of his pupil; both which, according to the present mode of conducting travel, are commonly shaken from the basis, and levelled with the dust, before the end of the peregrination. A tutor of character and principle will resolve to bring his pupil home, if it is possible, not worse in any respect than he was on his departure." Knox on Education, vol. ii. p. 305.

^b Milton on Education, p. 21.

to some intelligent persons, who have pursued the same route, which he intends to take. It will be highly useful to obtain *written* instructions from them, as they afford more room for deliberate reflections, than mere oral directions admit. The more time the traveller has previously bestowed upon acquiring a knowledge of the country he intends to visit, the better will he be qualified to ask such proper questions on his arrival there; as will lead to the most useful information.

Travelling at too early an age may be greatly injurious in its consequences. If the elements of literature and science are not acquired, when the mind is in the most ductile state, and the memory is most tenacious and retentive, a youth will never gain correct and accurate knowledge. On his return home, he will probably be engaged in business, or a constant round of society, and consequently will have little leisure to attend to the improvement of his mind. Having been early accustomed to wander from one object to another, and fond of displaying his superficial accomplishments, he will never apply himself to regular study; he will resemble the gaudy butterfly, rather than the industrious bee, which extracts sweets from every flower. He ought to go abroad a year or two before he is expected to appear upon the stage of public life at home. By that time his disposition and general character may be ascertained, and his habits of thinking will in a great degree be formed. Having had some experience, and beginning to exercise

cise his own judgment, he will not then be so dazzled with first appearances; nor will he esteem the productions or the manners of foreign countries excellent, merely because they have the recommendation of novelty, and differ from his own—He will not think every opera-singer a worthy object of his affections; nor will he regard every sycophant, whose address is insinuating, and whose professions of service are profuse, as a sincere and valuable friend. His morals will be less liable to be corrupted, and his fortune more secure from the insidious arts of parasites and courtesans. In Paris, Vienna, Brussels, and all other great cities of Europe, artful men and women lay innumerable snares to catch the raw and inexperienced: many of those young men, who resort too early to the continent, can fully attest their success; since from such improper and dangerous acquaintance, they frequently trace the loss of health and fortune, and the sacrifice of those wholesome prepossessions in favour of their own religion, country, and government, which were implanted in their early years. Hence too, when their minds are susceptible of every impression, they take the stamp of foreign manners, and become deeply tinged with frivolousness and affectation.

Previous to the French revolution, there were not a few of our travelled countrymen, who, mistaking foppishness for politeness, and conceit for intellectual strength, established a kind of commercial treaty with our Gallic neighbours, and ex-

changed candour for affectation, steadiness for frivolity, and religious principle for the profane levity of the French Philosophists. They brought back little of the noble simplicity of the English character; but rather showed how much the true ends of visiting foreign countries might be perverted, by exhibiting on their return the manners of *petits-maitres*, the ostentation of sciolists, and the profligacy of Infidels.

To contemplate the face of nature, and examine the works of art, in different countries, agreeable and instructing as such researches may be, are far from constituting all the objects, which the traveller has to occupy his attention, provided he takes proper advantage of the opportunities afforded to him of seeing and knowing the world. The display of *manners* and *characters* is as much open to his researches, as the prospects of nature, or the cabinets of art. It is his important business to study mankind; and he cannot possibly apply to that study with success, unless he has attained a mature age: nor can he indeed gain a welcome admittance into respectable and improving company: for it is not reasonable to suppose that foreigners distinguished by rank, abilities, or attainments, will be eager to converse with boys just freed from school: they may however be gratified by the attention of those young men, who have knowledge to communicate, as well as to gain; whose curiosity is directed to proper objects; and who increase the reputation of

of their country by their ingenuous dispositions and propriety of behaviour^c.

From the *expedition*, with which some travellers proceed, we are not to conclude, that knowledge of the world may be caught by a transient glance; or that they belong to that high order of genius, who can “grasp a system by intuition.” They might gain as much information, if they were wafted over the continent by a balloon, as they acquire by viewing a country, during their rapid progress through it, from the windows of a carriage. The various places, through which they hasten, can only appear to them like the shifting scenes of a pantomime, which just catch the eye for a moment, and succeed so rapidly as to obliterate the faint impressions of each other. We are told of a noble Roman, who could recollect all the articles sold at an auction, as well as the names of the several purchasers.—The memory of such volatile travellers ought to be equally retentive, considering the few hours they allow themselves for the inspection of curiosities, and the short time of their residence in different places.

Ignorance of the modern languages, and especially of the French and the German, is a great obstacle to the improvement of many Englishmen,

^c In Lord Essex's Letter to the Earl of Rutland, and in that of Sir Philip Sydney to his brother, there is some excellent advice to travellers. Seward's Biography, vol. ii. p. 358, &c.

and prevents them from reaping the desired advantages from their Travels. The custom is too prevalent of postponing any application to foreign languages, until a few months before the grand tour is commenced. The pupil is encouraged by the compliments of his teacher to flatter himself, that a slight degree of attention to a few hasty lessons will produce extraordinary proficiency, and make him a complete linguist. From a knowledge of the customary forms of address, and the names of common objects, the French language is improperly supposed to be very easy to be acquired. No allowance is made for the variety of the irregular verbs, the idiomatic structure of sentences, and choice of words, the peculiar turn of fashionable phrases, or for the great difficulty of acquiring a just and correct pronunciation. His deficiencies in all these particulars are too frequently apparent, as soon as the young traveller has crossed the Channel. After exchanging a few compliments, which he expresses in the formal language of his vocabulary, his conversation is at an end: his faltering tongue, and embarrassed air discover, that he labours with ideas, which he wants words to express. If he can arrive after much hesitation at the arrangement of a sentence, all the politeness even of a Frenchman is requisite to palliate his mistakes. Frequent attempts will without doubt produce fluency, and constant care will secure correctness: but the misfortune is, that the young traveller is too often employed in acquiring a knowledge of words and phrases, when he ought to be improving

improving his mind in social intercourse with those to whom he is recommended.

This defect in their education is a great inducement to Englishmen to associate too much with their countrymen, when they are abroad. Hence, on reaching any of the great towns upon the Continent, they are fond of forming parties among themselves, and are busy in prejudicing each other against the inhabitants, of whom they know little from their own experience, and of whom they do not feel the laudable desire of knowing more. It is obvious, that such conduct is calculated *to frustrate the principal end* of travelling, by increasing those prejudices, which it ought to remove, and by inducing the young traveller to acquiesce in the misrepresentations of others, who may pretend to give him a true description of characters and manners. As he has the opportunity of ascertaining these points himself, his own experience is his best guide. Should he continue to associate only with Englishmen, he will gradually so narrow the circle of his observation, as to confine his attention to places, when it ought to be directed to persons—he will merely gratify his sight, and neglect to improve his understanding; and will be conversant with pictures and public buildings, and a stranger to polite and well-informed societies. “Without possessing the language, it is impossible to appreciate either the genius, or the character of a nation. Interpreters can never supply the defect of a direct communication. And without continuing a sufficient time,

no traveller can form an accurate judgment; for the novelty of every thing around us naturally confounds and astonishes. The first tumult must subside, and the objects which present themselves *be repeatedly examined*, before we can be certain the ideas we have formed are just. To see well is an art, which requires more practice than is commonly imagined^d."

Wherever the traveller may direct his steps, the particular objects of attention will always have a reference to his inclinations, his education, or his future employment in life. He, who goes abroad solely for his amusement, or merely to observe the fashions of the various places, deserves not the re-

^d Volney's Preface to his Travels, p. iv. I will beg leave to recommend one example, that of Cicero, as a model for the conduct of Travel. "He did not set out till he had completed his education at home—and after he had acquired, in his own country, whatever was proper to form a worthy citizen and magistrate of Rome, he was confirmed, by a *maturity of age and reason*, against the impressions of vice. In a tour the most delightful of the world, he saw every thing that could entertain a curious traveller; yet staid no where any longer than his benefit, not his pleasure detained him. By his previous knowledge of the laws of Rome, he was able to compare them with those of other cities, and to bring back with him whatever he found useful, either to his country, or himself. He was lodged, wherever he came, in the houses of the great and eminent, not so much for their birth and wealth, as their virtue, knowledge, and learning: these he made the constant companions of his travels It is no wonder, that he brought back every accomplishment, which could improve and adorn a man of sense." Middleton's Life of Cicero.

spectable

respectable appellation of a *Traveller*, any more than the merchant, or the sailor, who traverse the ocean for the purposes of commerce. Those who properly come under this description, are eager to make such researches, as show their love of nature, science, and the great objects, which conduce to the comfort and ornament of mankind. Among such travellers, we distinguish a *Banks*, who visited the confines of the southern hemisphere, to add new plants to the dominion of botany; a *Shuckburgh*, who ascended the Alps, with undaunted perseverance, to ascertain their altitude; a *Hamilton*, who explored Italy and Sicily, to survey and to preserve the precious relics of ancient art; a *Gray*, who, with true epistolary ease, and genuine taste, described every place and object so perfectly, as to set it immediately before the eye; a *Moore*, who has conveyed in the form of striking anecdote, the lively pictures of French and Italian manners; a *Young*, who, studious to improve the most beneficial of all arts, has described the state of agriculture in various climes; or, a *Howard*, who, visiting the sick and the imprisoned of various countries, and zealous to alleviate their distresses, and make their confinement more tolerable, proved himself by the labours and the sacrifice of his life, to be a true friend to mankind. It is surely an honour not only to our own country, but to human nature, that the spirit of curiosity should exert itself in such various directions; since new observations and discoveries have thus been made for the enlarge-

ment of knowledge, and the general benefit of society.

To tread on classic ground is a very pleasing source of gratification to the traveller. He has it in his power to adopt the most direct method of illustrating the allusions to manners, customs, and places, found in his favourite authors, and to supply the defects of commentators and critics by his own actual observations. He, who relishes the beauties of a Virgil, or a Horace, will be eager to visit the spots, either marked by their footsteps, or immortalized by their poems. What delight will he experience, when he sees the Po flowing through the meadows of Mantua, and afterwards rushing by various streams into the gulph of Venice; or, when he traverses the shores of Baiæ, and wanders amid the groves of Umbria! The Anio dashing its foaming surges through the craggy channels of the rocks, and the hills of Tivoli, interspersed with orchards, olive-grounds, and corn-fields, recall Horace and Tibullus to his remembrance. These scenes, ever endeared to learning and taste, inspired many of the lively and festive Odes of the one, and of the tender and pensive Elegies of the other.

Doubtless these and similar places may owe much of their beauty to the power of *description*; and actual observation may efface the rich and glowing tints of poetical colouring: yet a prospect of the spots,

spots, where heroes achieved their noblest exploits, or where the great poets, orators, and historians poured forth the streams of genius, must afford exquisite pleasure to every cultivated mind. If the scenes they inhabited or described do not exactly correspond with the high expectations conceived from their works, such an actual survey can hardly fail to inspire the traveller with the most pleasing enthusiasm, give him lively images of the descriptions, which charmed his youthful fancy, and will endear the objects of his early studies.

The effects likely to be produced upon the mind by such scenes are described with his usual strength of observation by Johnson, in his Tour to the Hebrides.—“ At last we came to Icolmkill.—We were now treading that illustrious island, which was once the luminary of the Caledonian regions, where savage clans and roving barbarians derived the benefits of knowledge, and the blessings of religion. To abstract the mind from all local emotion would be impossible, if it were endeavoured; and would be foolish, if it were possible. Whatever withdraws us from the power of our senses, whatever makes the past, the distant, or the future, predominate over the present, advances us to the dignity of thinking beings. Far from me, and from my friends, be such frigid philosophy, as may conduct us, indifferent and unmoved, over any ground, which has been dignified by wisdom, bravery, or virtue. That man is little to be envied, whose patriotism would not gain force upon the plain

plain of Marathon, or whose piety would not grow warmer among the ruins of Iona^c."

His mind will be filled with admiration at the sight of the monuments of architecture. Rome sufficiently displays the extent of her pristine grandeur and magnificence; and proves, amid massy ruins, broken arches, and prostrate columns, the justice of her pretensions to the title of the Empress of the world^f. The ruins of the Capitol, the solid and extensive public roads, and the monuments erected upon them to departed heroes; the Coliseum, or Flavian Amphitheatre, which could contain vast multitudes in its capacious circuit; the Pantheon, perfect in its symmetry;

"Amid the domes of modern hands,
How simply, how severely great!"

the Arch of Titus, rich with triumphs; the Column of Trajan, inscribed with the fairest forms of sculpture, still remain to recal the great exploits of the past. The traveller will be diligently employed in tracing the remains of Pæstum, Her-

^c Tour to the Hebrides, p. 346.—See Cicero de Finibus in Procæmio, where a similar train of thought is pursued, but by no means supported by equal energy.

^f Aspice murorum moles, præruptaque faxa,
Obrutaque horrenti vasta theatra situ.

Hæc sunt Roma: Viden' velut ipsa cadavera tantæ
Urbis, adhuc spirent imperiosa minas.

Janus Vitalis.

culaneum,

culaneum, and Pompeii, lately rescued from obscurity; and he will inspect with the greatest pleasure the numerous antiques deposited by the taste of the King of Naples, in the Museum at Portici^g. Even where time, and the violence of barbarians, have almost entirely effaced the monuments of Roman grandeur, he will explore with ardour the ruins of the splendid villas once inhabited by Cicero, Mecænas, Horace, and Adrian; and while he surveys

“ The wide waste of all-devouring years
Where Rome her own sad sepulchre appears,”

he will not fail to indulge those melancholy yet edifying reflections, which are associated with sensibility and with virtue, upon the instability of human affairs, the insignificance of worldly grandeur, and the revolutions of empires, in conformity to the disposal of divine Providence.

Nor will he overlook the modern specimens of architecture, scattered with profusion over Italy—He will survey the marble palaces of Genoa—the squares, fountains, obelisks, and palaces of Rome—and more than all, the sublime church of St. Peter,

^g When the very learned Abbé Barthelemy saw this collection in 1756, it contained 800 manuscripts, about the same number of pieces of painting, more than 350 statues, heads and busts; nearly 1000 vases of different forms; 40 great branched candlesticks, and more than 600 other morsels of antiquity.

rearing

rearing its majestic dome above all the surrounding edifices. Struck with this unparalleled structure, he will confess, that the genius of Michael Angelo was alone capable of perfecting the plan for such a subject of perpetual admiration^h.

In the places most distinguished by the productions of the great artists, he will examine the finest specimens of sculpture. The Gallery of the Grand Duke at Florence presents to his view numerous specimens of marble shaped into the most expressive and lively forms. The *Hercules* of the Farnese palace, the just image of unconquerable strength, resting after the performance of some dif-

^h St. Peter's Church was begun in 1506, by Pope Julius II. from the designs of Bramante d'Urbino. The great Michael Angelo Buonarotti improved the plan, and gave the model for the cupola, which was finished by Pope Sixtus V. The Spectator remarks, that on entering this most magnificent of all Cathedrals, the proportions of the building are so just, that no particular part strikes his eye more than another, but he fixes at once on the whole together. By the perfect symmetry, he is not struck with their greatness, till he comes to examine each part by itself. The length of St. Peter's, on the outside is 730 feet; breadth 520. Height from the pavement to the top of the cross, which crowns the cupola, 450 feet. The grand portico before the entrance is 216 feet long; 40 broad. The length of St. Paul's, including the portico, is 500 feet. Breadth of the cross-aisles, from north to south, 248. Height to the top of the cross, 356. St. Peter's was 135 years in building by 12 successive architects, under 19 Popes. St. Paul's was built in 35 years, by one architect, Sir Christopher Wren, who if he had been allowed to follow the dictates of his own genius, would have rivalled in London the glory of Rome.

ficult

ficult exploit, displays his gigantic proportions, and finewy limbs. The tragic end of *Niobe* and her daughters is represented in marble, and every figure which composes the interesting group expresses exquisite emotions of terror and pain. In the palace of the Louvre may now be seen among no less than 208 inestimable specimens of antient art, a head of *Jupiter* brought from the Museum of the Capitol, in which the awful and placid majesty of the sovereign Ruler of Gods and Men accords with the descriptions of Homer. The *Mercury* of parian marble, is remarkable for the easy inclination of the head, the mild expression of the countenance, and the fine turn of the limbs. Such is its perfect execution, that Pouffin, the great painter, esteemed it the best model for the proportions of the human figure. The *Laocoon* of the Belvidere, discovered among the ruins of the palace of Titus, expresses in the figures of the Father and his two Sons the utmost violence of painful emotions. In vain they struggle against the attacks of the monstrous serpents, which twine around them in spiral folds. The wretched Laocoon, with head upraised to utter the cries of despair, is expiring in the same agonies, from which he has vainly attempted to rescue his dying childrenⁱ. But what description

ⁱ Virgil has given a lively description of this story, and perhaps derived it from this, or a similar statue, *Æn.* ii. l. 212, &c. The epithet *parva*, applied to the “*duorum corpora natorum*,” is remarkably characteristic of this group, because the figures of the sons of Laocoon, although they have the muscular forms of men, are comparatively small. The large figure of Laocoon exactly coincides with Virgil’s particular description of him.

can do justice to the *Apollo of the Belvidere*! For three centuries since first found among the ruins of Antium, has he stood the admiration of all beholders. Such is the beauty of his features, his graceful attitude, and the happy mixture of agility and vigour, as to exceed all comparison with the fairest forms of individual nature. The *Venus de Medicis*, of which no model can convey an adequate image,—the figure that *enchants the world*,—gently bends her delicate form in the most graceful and modest attitude: beauty breathes its captivating animation into every limb, and the enraptured eye glides over the whole statue with increasing delight and admiration.

The cabinets of the medallists call for his attention. There he traces the reigns of monarchs through successive ages, and sees the images of heroes, statesmen, and beauties, whose various actions were the interesting subjects of his previous studies in the collection of the Grand Duke at Florence, and in the National Library at Paris. The gold and brass medals of the latter exhibit the elegance of Grecian and Roman art. He will be struck with the youthful beauty of Alexander the Great, the stern aspect of Galba, the martial steadiness of Vespasian, the crowned head of Zenobia, and the lovely profile of Faustina—he sees the emblematical figures corresponding with the reigning mythology of antient times; Abundance pouring forth mixed fruits from her horn; Victory waving her wings; and Honour encircled with a
6 laurel

laurel crown. He fails not to notice the illustration, which a series of medals afford to ancient manners, poetry, and history^k.

The traveller qualifies himself for a constant source of entertainment by his fondness for the productions of the pencil. After having formed his judgment, by inspecting the best collections, of which his own country can boast, he visits with delight the choice cabinets abroad, and tastes that refined pleasure, which the incomparable productions of the best masters are alone capable of affording. The grand gallery of the Louvre, enriched with the plunder of Churches and Palaces, will afford an ample field for the indulgence of his curiosity, as it contains nearly a thousand of the choicest productions of the Italian and Flemish schools. Upon all these occasions he will examine, whether the artist has given to the marble, the gem, the brass, and the canvas, a just representation of nature, passion, and beauty; and will be more attentive to general effect, than to minute accuracy.

He will delight likewise to view the literary stores, collected in public and private libraries. To him the Vatican and the National Library of France will unfold their treasures:—there he may satisfy his curiosity, by inspecting the

^k See Addison's Discourse on Medals, and Spanheim's very learned work, from which later writers have borrowed some of their best remarks,

most ancient and curious manuscripts of the classic authors, the earliest and the most beautiful specimens of printing, and the choicest modern editions.

The *present* state of literature and of the arts will likewise call for his attention. He will examine how far a nation has risen above, or fallen below its former condition; and in what respect it excels, or is inferior to others. He will inquire into the principal sources of its wealth and prosperity; for this purpose he must procure access to the statesman, the merchant, and the agriculturist, and from their reports derive just and accurate information. He will collect from their conversation the state of commerce and agriculture; and how far these sources of prosperity exceed, in any respect, those of his own country. He will also ascertain what are the religious and political establishments, the prevailing *amusements*¹, remarkable

¹ “ In studying the character of a people, one inquiry should always be, what were their *amusements*? We here get hold of great features, which often unriddle the rest. This is indispensably necessary, where states have risen to cultivation. In the finer tracts of the temperate regions of the earth you meet amusements that are elegant, and pleasures that are refined. Departing on either hand to the south, or to the north, you find taste to degenerate, and gratification to become impure. At length arriving at the extremities, refinement is utterly lost; —to give pleasure is to stupify, or to intoxicate, here by opium, there by brandy and tobacco. The happy intermediate regions enjoy the *yvresse du sentiment*. Is the philosopher

remarkable customs, and what is their combined and general effect upon the sentiments, manners, prosperity, and happiness of the people.

“ In your travels these documents I will give you, not as mine, but his (the accomplished Sir Philip Sidney's) practices. Seek the knowledge of the estate of every prince, court, and city, that you pass through. Address yourself to the company to learn this of the elder sort, and yet neglect not the younger. By the one you shall gather learning, wisdom, and knowledge: by the other, acquaintance, languages, and exercise. This he effectually observed, with great gain of understanding^m. ”

The traveller will moreover embrace every opportunity of enlarging his knowledge of the world, or in other words, he will turn his knowledge of himself to the greatest use, by ascertaining how far the image of others is reflected by his own disposition, propensities, and passions. His constant intercourse with society will afford the most favourable means for the exercise of acuteness and discernment. He will not confine his observations

sophor to set at nought these distinctions? Is he to lay no stress upon the different state of the arts? Is he to imagine it imports not that the peasant in Muscovy subsists on garlic, and solaces himself with ardent spirits; and in Italy that he feeds on a water-melon, and goes forth with the guitar on his back to the plough.” Robertson's Inquiry into the fine Arts, p. 187.

^m Sir Henry Sidney's Letters. Elegant Epistles, p. 210.

to the exterior forms and superficial habits of society; but will endeavour to investigate the latent dispositions and characters of his associates: he will conclude, that men, like books, are not to be valued for their outward appearance, or splendid dress, but for their intrinsic excellence. He will look through national peculiarities—he will pierce the veil of local customs, and endeavour to view mankind, as they really are, influenced for their general passions and dispositions. He will esteem those with whom he converses, rather for their moral worth, than their intellectual powers;—for their personal merit, rather than their exalted rank, or dignity of station.

To every object he will not fail to direct such a degree of attention, as is suited to their importance and utility. Whatever he thinks deserving his notice he will survey with an attentive eye; and the information he is eager to gain will be equally marked by its correctness and its extent. Convinced of the inestimable value of time, he will never be prodigal of the small portions of which it consists. He will be expeditious both in his movements and his remarks, but will not be precipitate in either. Ardent in his inquiries, but not frivolous or trifling, he will explore whatever is curious in nature or art with assiduity and diligence. In every place he will reap an intellectual harvest of its various productions, convey it to his own country, and make it the subject of pleasing recollection for the future years of his life, and the means of entertainment

tertainment to his friends;—and should he have made any observations, which upon mature deliberation he may judge of sufficient importance, he will publish them for the general information of the world.

He will be extremely cautious how far he gives any countenance to the *novel opinions*, which have of late years, so unhappily for the general repose of society, prevailed upon the continent, relative to government and religion. He is well convinced, that novelty is not excellence; and that change may be inconsistent with melioration both religious and political. He remarks in some of the countries, which he explores, the baleful effects of that revolutionary spirit, which has inflamed the minds of its votaries to phrenzy, deluged the continent of Europe with blood, and filled the measure of human misery to an unprecedented height. He is sensible of the excellence and the importance of Christianity, at the same time that he is convinced by its evidences, and tastes the blessings of its consolations and its hopes. He regards its modern foes, whether distinguished as *Illuminati* or *Philosophists*, as offering an insult to the common sense of mankind; and therefore deserving to be treated rather with contempt and ridicule, than with any degree of respect.

Thus the English traveller will not fail to derive every advantage from his visit to foreign countries. On his return to his native shores, his

manners will be refined, but not formal ; his dress fashionable, but not foppish; his deportment easy, but not negligent. Instead of importing the trifling fopperies of other countries, and displaying showy and superficial acquirements, as the substitutes for solid information and elegant accomplishments; and instead of endeavouring to excite the applause and admiration of the ignorant, by his exaggerated descriptions of distant places, and of his own extraordinary adventures, he will rather avoid every ostentatious display, as unworthy of his character and his sacred regard for truth". His constitution, unbroken by vicious indulgence of any kind, will be strengthened by exercise, and his fortune will be unimpaired by extravagance. Scepticism will not undermine, nor bigotry contract, his religious principles. He will give a proof what a high polish the

" The traveller, especially if he has visited countries not commonly explored, would do well, both in his conversation and writings, to follow these remarks. " I have endeavoured to maintain the spirit with which I conducted my researches into facts; that is, an impartial love of truth. I have restrained myself from indulging any fallies of the imagination, though I am no stranger to the power of such illusion over the generality of readers: but I am of opinion, that travels belong to the department of *history*, and not that of *romance*. I have not therefore described countries as more beautiful than they appeared to me; I have not represented their inhabitants more virtuous, nor more wicked than I found them." Volney's Travels, Preface, p. vi.

" *Fas est et ab hoste doceri;*" although I quote this author here, and in one or two other places with approbation, I repeat my solemn protest against his disregard of truth, and his unblushing impiety.

British

British diamond can take; for his example will fully evince, that it cannot be excelled either in solidity or lustre. His prejudices in favour of his own country will rather be confirmed than worn away by extensive comparison^o; and enlarged intercourse with mankind; and his general knowledge will be augmented through every pure and original channel of information. His philanthropy will be ardent, and his patriotism not less spirited than rational. His various acquirements and engaging manners will render him not only the delight of his friends, but the ornament of his country. In short, he will become by observation and habit a true citizen of the world; who, having carefully weighed the merits of other cultivated nations, will make GREAT BRITAIN the place of his residence, not merely by reason of local attachments, but because, when justly weighed against other countries, *the excellence of her laws and constitution, both civil and religious, the mildness of her climate, the benevolent temper of her inhabitants, and the adaptation of their manners and customs to the general comfort of life, preponderate in the scale.*

• “Prejudice is an equivocal term; and may as well mean right opinions taken upon trust, and deeply rooted in the mind, as false and absurd opinions so derived and grown into it. The former of these will do no hurt; on the contrary, perhaps, the very best part of education is employed in the culture of them.”
Hurd, vol. iii. p. 86.

CHAPTER V.

The Professions.

THE topics, which have been considered in the preceding Chapters, present a sufficient choice of interesting subjects of application to an English student, who is desirous that the lights of useful knowledge may irradiate his mind from various points.

Should his fortune be sufficiently ample to exempt him from the necessity of following a profession, he will have more leisure to pursue his classical and philosophical studies. Having improved his relish for useful reading by requisite application, he will not be compelled to have recourse to rural diversions, or insipid amusements, merely because he is ignorant of any other method to employ his leisure hours. He may enlarge his acquaintance with instructive books, and derive a pure and exalted pleasure from his general reading. In his intercourse with the world, he will soon be convinced, that his attainments give him great advantages over the vulgar and illiterate, that they qualify him to take comprehensive views of what is passing around him, and put him in possession of many *particular facts*, many *useful observations*,
and

and many *general principles*, which may be applied with the best effect to his various concerns. In every stage of life, he will experience the great advantage and satisfaction, which flow from an understanding elevated by religion, cultivated by learning, and refined by taste.

But the elementary parts of learning are most important, when considered as the groundwork of the Professions. Few of these parts indeed can be said to be entirely unconnected with them; and there are none, which do not communicate some important truth, annex some pleasing appendage, or supply some elegant ornament to improve, adorn, and complete the professional character. And it is the exercise of a *Profession*, which will enable a young man to render his attainments immediately instrumental to the good and happiness of others, as well as of himself.

If such be the advantages resulting from application to classical learning and philosophy, of what high importance is it to the student, to explore with an attentive eye, and cultivate with diligence, the pleasant fields of general knowledge, previous to treading the more confined path of professional research!

As preparatory studies are advantageously combined with those which are professional, so may they communicate great assistance to each other. The Physician renders himself more extensively

useful in the course of his practice by some knowledge of the laws of his country, and the clergyman by his acquaintance both with medicine and law^p. And the occupations both of the Physician and the Barrister must ever, in the opinion of all well-disposed persons, be rendered more respectable by a uniform attention to the duties of religion.

In regard to the Professions in general, it cannot surely admit of a question, whether the man, who perfectly understands the principles of his profession, and the branches of knowledge immediately connected with it, and who properly applies his various information, has not the greatest advantage over him, who, although possessed of superior abilities, has neglected the cultivation of his mind. Splendid talents are indeed the peculiar gifts of nature, and cannot be acquired by the greatest efforts of application, or procured by the most profound and extensive learning. But by the assistance of application and of learning alone splendid talents will be carried to their proper degree of improvement. And without them, it is a fact warranted by experience, that the most brilliant parts will be of little use, either to the possessor, or the public.

I. THE PROFESSION OF THE LAW.

This Profession is highly useful to the public, and may prove no less honourable than advanta-

^p Gifborne's Duties, vol. ii. p. 131. Percival's Medical Jurisprudence, p. 44. Blackstone's Comment. vol. i. p. 13.

geous to the student, who conscientiously follows it. If he aspires to eminence at the bar, he ought to be blessed with a firm constitution, to enable him to discharge the duties and support the fatigues of his profession with ease and pleasure. His memory should be quick and retentive, his judgment clear and acute, his understanding sound and comprehensive, his religious principles firm, his moral character pure, his disposition benevolent, and his ardour for distinction not liable to be damped by difficulties, but in every stage of his career strong and unabating⁹.

When he considers the dignity and the importance of the study, in which he is engaging, in all its relations to general good, he will be deeply impressed with the profound sentiments expressed by the venerable Hooker, particularly in the following eloquent passage: "Of law there can be no less acknowledged, than that her seat is the bosom of God, her voice the harmony of the world, all things in heaven and earth do her homage, the very least as feeling her care, and the greatest as not exempted from her power, both angels and men, and creatures of what condition soever, though each in different sort and manner, yet all

⁹ The character, which Cicero has given of Hortensius, and the description of his own early studies, furnish excellent illustrations of this part of my subject. See Cicero de Claris Orat, sect, 301, 306, &c. Ed. Proust.

with uniform consent admiring her as the mother of their peace and joy^r.”

By contemplating the characters, and perusing the works of the most eminent orators, he will perceive to what an elevation the honour of the profession has been advanced; and, not to recur to the trite instances of ancient times, the examples furnished by a Lord Mansfield, and a Sir William Jones, may be sufficient to stimulate his diligence, rouse his emulation, and show him what a degree of dignity, emolument, and fame, may be reached by the united powers of talents and application, in a pursuit, which, above all others, is propitious to their exertions.

Of the great utility of his *early* studies he will be fully convinced, when he considers their connexion with the business of his profession. His acquaintance with general history will furnish him with a copious stock of examples, from which he may draw useful arguments, and reason by analogy. The detail of events, and the descriptions of the state of manners, in the different periods of our history, will serve as the best comments upon our laws, and will materially conduce to his understanding them fully, and explaining them with correctness.

He will be sensible how well calculated his logical and mathematical knowledge was, not only to fur-

* Ecclesiastical Polity, b. i. ad finem.

nish his mind with early nutriment, but with food adapted to his riper years.—He will recognize their assistance in forming clear ideas, arranging them in due order, reasoning upon just principles, and deducing right conclusions. He will perceive that the mode, which logic teaches, is applicable to practice—that it enables him to strip the sophistry of antagonists of its disguise, and to detect the artifices of corrupt and fraudulent witnesses. His classical pursuits, and the literary productions of his own and other countries, will give compass, variety, and elevation to his thoughts, and elegance and copiousness to his language. They will supply illustrations to every subject of discussion, present various and pleasing images to his fancy, and diffuse an air of polish and correctness around all his forensic efforts.

“No difference is so easily perceived as that which a knowledge or an ignorance of ancient literature creates in the manner, the look, the voice, and the language of men, who attempt upon any occasion to utter their opinions in public, and this even when nature may not have been liberal in the gift of eloquence. Under the influence of the former there is a lucid order, a chastity of sentiment, and a language of appropriate manliness and harmony; the manner will be composed and independent, the tones of the voice firm, and adapted to the occasion: in short, such a man shall say but very few words, before you are thoroughly convinced, that he has formed an intimate acquaintance—

quaintance with those great characters, who have justly obtained an immortal name^s."

"If therefore the student in our laws hath formed both his sentiments and style by perusal and imitation of the purest classical writers, among whom the historians and orators will best deserve his regard; if he can reason with precision, and separate argument from fallacy, by the clear simple rules of pure unsophisticated logic; if he can fix his attention, and steadily pursue truth through any the most intricate deduction by the use of mathematical demonstrations; if he has enlarged his conceptions of nature and art by a view of the several branches of genuine experimental philosophy; if he has impressed on his mind the sound maxims of the law of nature, the best and most authentic foundation of human laws; if, lastly, he has contemplated those maxims, reduced to a practical system in the laws of imperial Rome; if he has done this, or *any part of it*, a student thus qualified may enter upon the study of the law with incredible advantage and reputation. And if at the conclusion, or during the acquisition of these accomplishments, he will afford himself in the University a year or two's further leisure, to lay the foundation of his future labours in a solid, scientific method, without thirsting too early to attend

^s Letters on the Study of the Law, p. 97. This excellent remark is equally applicable to the public exercise of the Clerical profession.

that practice, which it is impossible he should rightly comprehend, he will afterwards proceed with the greatest ease, and will unfold the most intricate points with an intuitive rapidity and clearness^{*}."

The necessity of close application will be evident, when he considers the multiplicity of our laws, arising from the numerous rights of individuals, the various kinds of property, and the depredations to which it is exposed. He will feel his obligations to that learned and judicious commentator, who facilitates his progress and guides his steps through the intricate labyrinth of jurisprudence: and as the excellent work of BLACKSTONE, in which are so happily combined the principles of our municipal constitution with their origin and history, formed the basis of his elementary studies, so will it greatly assist him in the more advanced stages of his profession.

He will observe the proper application of laws to particular cases by attending the courts of justice; by this practice, steadily pursued, he will be enabled to collect a stock of valuable precedents for his own use. He will exercise his acuteness in unravelling the intricate circumstances of a case, and

^{*} Blackstone's Introduction to his Comment, p. 32. Every young man will do well to peruse this excellent Introduction with attention, as it so clearly points out the *general* utility of an acquaintance with the laws of the land.

in separating truth from the mass of error and misrepresentation, with which it is frequently surrounded.

When he comes forward to plead at the Bar, he will display accurate information, aided by the powers of unaffected eloquence. He will be sensible of the charms of a graceful delivery, and of manly and appropriate action. Ever careful not to deviate from the subject in question, he will not injure his cause by tiresome prolixity, by too great an attention to minute circumstances, or an ostentatious display of knowledge.

In the intercourse of private life, he will endeavour to guard against those foibles, to which his profession may expose him. His manners will not be overbearing, his conversation will not take too deep a tincture from his mode of life and habits of study; and he will remember, that the circle of domestic society is not the theatre for the exhibition of those *argumentative* talents, which are only displayed with propriety in the discharge of his professional business.

By the pursuit of such a line of conduct as is uniformly marked by unimpeachable integrity, true benevolence, and assiduous attention, the Barrister will go forward with honour to himself, advantage to the public, and credit to his profession. Should he gain admittance into a higher sphere of eloquence, and serve his country as a member of the
House

House of Commons, he will be sensible of the difference which subsists between the two situations, with respect to the persons, whom he is to address, the subjects of discussion, the mode of conducting his arguments, and the forms of debate. He will therefore lay aside, when he comes forward as a member of the senate, his technical language, and ingenious casuistry, and will determine the merits of a question upon broad and general principles, with reference to its true nature and real importance.

If his distinguished merit should point him out as a proper person to fill one of the executive departments of government, he will indulge with caution his honourable ambition, and consider well the motives, which ought to influence him in declining, accepting, or resigning the station proposed, and not act under the influence of selfishness, or vanity, at the expence of his conscience or his judgment. In accepting a high office, he will be happy that the circle of his usefulness is enlarged, and that his opportunities are more frequent of displaying his talents in the noblest of all services—the service of his King and his Country.

By the Bar are furnished those able and learned persons, who are selected to preside upon the bench of judges. The prospect of such an honour may operate as an additional incitement to the application of the Barrister. But let him reflect, that the integrity, diligence, and knowledge of him, who aspires

aspires to this exalted station, are required to be pre-eminent. The welfare, good order, and due regulation of all ranks of the community, are intimately connected with, or more properly may be said principally to depend upon, the qualifications of him, who sustains one of the most important characters in the state, as the interpreter of the laws, the punisher of vice, the guardian of innocence, the dispenser of justice, and the representative of his Sovereign.

II. THE MEDICAL PROFESSION.

“In Great Britain, though the Medical Profession does not possess so many splendid prizes as the Church and the Bar, and on that account perhaps is rarely, if ever, pursued by young men of noble families, it is by no means barren of honours and attractions; it opens the way to reputation and wealth, and raises the Physician to a level, in the intercourse of common life, with the highest classes of society.”

The profession of a Physician has in all ages and countries been held in great estimation, by reason of its intimate connexion with the welfare of man-

^u Gisborne's Duties, vol. ii. p. 124. I should not have ventured to give these instructions upon the subjects of Medicine and Law with so much confidence, if I had not derived great assistance from the excellent observations of Gregory and Gisborne.
kind.

kind. The cure of diseases, the restoration of health, and the continuance of life, are the objects, to which the attention of the Physician is directed; and he cannot fulfil his important duties, without possessing requisite knowledge, and exercising a due degree of judgment and sagacity. Destitute of the aids, which books, lectures, and observations afford, he can never acquire the principles of Physic, understand the structure of the human frame, develop the causes and the seats of disorders, and become acquainted with proper remedies to remove them.

He will apply not only to the public lectures, delivered by eminent professors in anatomy, chemistry, and the materia medica, but he will examine with accuracy the various cases presented to observation by patients in the hospitals. There he will observe the different modes, in which those unhappy objects are treated, who labour under different diseases, as well as those, who are afflicted by various degrees of the same disorder. And he will remark with attention, and note with accuracy, the opinions given, and the particular observations made by the clinical lecturer.

An hospital opens the most extensive and useful field of observation to the medical student. It is the school, in which he may learn the most instructive lessons, and train himself for his general practice. He may there follow every complaint through its various stages, and contemplate all the

maladies of suffering man. There he may remark various experiments tried, new combinations of medicines formed, and new ingredients introduced into the *materia medica*. Giving way to the feelings of humanity, he may learn to appreciate the life and the health of the poorer members of the community at their due value, and consider the importance of restoring them in perfect health to their families and their country.

“By thus frequenting the hospital, he will see every moment some point illustrated, some doctrine confirmed, or some rule of practice established; at the same time almost every occurrence will serve to deepen the impression of those ideas, which it has been the endeavour of his teachers to imprint on his mind.” “He ought not to lose the least opportunity of acquiring clinical instruction. Clinical lectures are to the practice of Medicine what dissection is to Anatomy—it is demonstration. By them disease is as it were embodied and brought before the student, as a subject for his leisure examination. By them the tutor is enabled to illustrate the nature of diseases; to teach their various differences by actual comparison of those, which approximate in appearance, and to impress their several characters upon the mind of his pupil; to make him mark their growth and declension, to call on him to compare the ideas he has formed of disease with disease actually in existence, to render him conversant with the use of medicines, and with their various effects. He, who engages in practice with-

out this species of instruction, must be supposed to know diseases only by description; and when the fallacious appearances and proteal forms, which they assume, are considered, it is to be apprehended, that consequences too unpleasant to dwell on must succeed*.

The studies of his early years may be made subservient to professional purposes with great advantage. He will find the cultivation of the classical languages highly necessary. The original works of Hippocrates and Galen, the great fathers of medical instruction, cannot be read, nor can the terms of anatomy and natural history be clearly understood, without a competent knowledge of Greek. A still more intimate acquaintance with the Latin language is absolutely necessary to enable him to peruse the works of eminent foreign Physicians, as well as many of our own country. This is indeed the appropriate language of the profession—in this the Physician publishes, when he wishes to make his discoveries known to the learned world; and, in conformity with long established custom, in this he communicates his directions for the remedies prescribed to his patients.

Medical men have been justly celebrated for their classical attainments and elegant learning. To adduce no other proofs, many of the Orations, pronounced at the College of Physicians, are as

* Parkinson's Hospital Pupil, p. 53, 56.

remarkable for purity of style as for solid and ingenious observation.

The effects of medicine upon the human body are sometimes explicable upon mechanical, and sometimes upon chemical principles: an accurate and enlarged knowledge therefore of mechanics, chemistry, and physiology appears necessary for a Physician, in order that he may understand the appearances of the animal economy, both in its sound and morbid state, and likewise explain the operation of remedies.

The science of botany is likewise useful, so far as it facilitates the knowledge of plants, by reducing them into the most commodious system: and although it is not necessary for a Physician to be acquainted with the name and history of every plant he may meet with; yet he ought not to be ignorant of any material circumstance relative to vegetables, either used in diet, or as medicines. The remarks respecting botany are equally applicable to every other branch of natural philosophy, and more particularly to the researches of comparative anatomy and general physiology^y.

So much anxiety has been upon some occasions expressed to vindicate Physicians from the imputation of infidelity and a disregard to religion, that it looks as if this charge was not wholly destitute

^y Gregory, p. 67. 75.

of foundation. Perhaps their candour and moderation with respect to the different sects of Christians may have been ascribed by the narrow-minded to wrong motives ; and those Physicians who were in reality sincere Believers, offended by the groundless imputations of scepticism and infidelity, have expressed themselves in an unguarded manner, and thus have given their enemies a pretext for raising a clamour against them. For the honour of the profession it must be observed, that some of its greatest ornaments, Sir T. Brown, Harvey, Sydenham, Arbuthnot, Mead, Boerhaave, Stahl, Haller, and Hoffman, have been distinguished by their piety and firm belief in Christianity.

As the knowledge of diseases, their causes, symptoms, tendencies, and effects, constitutes the most important and difficult parts of professional study, the observations, which have been made by the most able and experienced Physicians, will claim the peculiar care of the student. He will read with close attention the curious dissertations of Stahl--the works of Boerhaave, Hoffman, Sydenham, and Helmont, and thus will be furnished with lights to guide his inexperience, which are not accessible to the unlearned empiric.

To complete the ground-work of his professional studies and observations, he may repair to those places, which are most celebrated for medical pursuits : but it seems to be a received opinion, that London, from the skill and celebrity of the faculty

who read lectures there, will render it unnecessary to visit other places. If he has sufficient leisure to extend the sphere of his observation, he may visit Edinburgh, and those cities upon the continent most celebrated for medical pursuits and establishments. He may thus free his mind from too great predilection to particular theories, and local modes of practice. He will survey the cultivation of those branches of the art, which are imperfectly, or perhaps not at all regarded in some particular places. And thus he will collect a useful store of observations for the direction of his future practice.

He will not commence his medical career before his observations have taken an extensive range, his reading is well digested, and his judgment is mature. *Too great eagerness to begin his practice* may prove injurious to his reputation, and the source of his own future regret. Nothing seems so well calculated to establish his character, as care and attention to his patients of whatever condition; a tender sollicitude for their welfare, diligence and punctuality in visiting them, and the exertion of his best abilities for their recovery, will not fail to obtain their reward. Who has it so much in his power to make the sick man his warm and constant friend, as the Physician? If he be distinguished by mild and amiable manners, a patient feels his approach like that of a guardian angel, who comes to relieve his sorrows, and remove his pains; while every visit from one, who is of a harsh and unfeeling temper, depresses his spirits, and may increase
instead

instead of diminishing his malady. True sympathy will produce attention to many little circumstances, which contribute much to the relief of the patient—an attention, which is above all price, and which, while it convinces the sick man of the goodness of his Physician's heart, increases his regard for him, and raises the respectability of his profession. By diligent and careful exertions, he will acquire the power of rendering the most important services to the public. He may very considerably extend his sphere of usefulness by superintending medical institutions, attending hospitals and dispensaries, and more especially by devoting certain portions of his time to the relief of the poor. To them his advice will prove of inestimable value; and his generosity in this respect will be repaid no less by their gratitude and the public approbation, than the applause of his own heart.

“ When fainting nature call'd for aid,
And hov'ring death prepar'd the blow,
His vig'rous remedy display'd
The power of art, without the show.

In misery's darkest cavern known,
His useful care was ever nigh,
Where hopeless anguish pour'd his groan,
And lonely want retir'd to die.”

Such was the appropriate praise bestowed by Dr. Johnson upon his friend Levet; and happy ought every medical man to think himself in the consciousness of similar merit.

The good physician will recommend himself to general patronage, regard, and esteem, by his skill, his benevolent disposition, and decorous deportment. In his treatment of the various diseases, which come under his care, he will diligently attend to the different constitutions and different habits of life of his patients; he will follow nature with the closest attention through all her changes; he will watch every symptom, by which he can discover her tendencies and disposition, and will skillfully adapt his medicines to those symptoms, as they appear. He will recruit the exhausted powers of the constitution, strengthen the springs of life, and give them fresh energy and vigour. Should he fail in his attempts, his want of success will be the fault of the art, and not of the practitioner.

In his common intercourse with the world, he will be distinguished by his general knowledge, and his pleasing and easy manner of communicating it. His attainments in literature and science will furnish him with the means of agreeable relaxation from his severer studies, and the fatigues of his Profession.

To his patients he will be punctual and benevolent, and yet never be induced so far to sacrifice the principles of his duty to their humour, caprice, or timidity, as to relax in his recommendation of whatever he is convinced will conduce to their relief^z. To his competitors he will be liberal and

^z Gregory, p. 182.

candid;

candid ; he will not indulge the asperity of opposition, nor the meanness of envy ; and he will trust for emolument and reputation, not to petty artifice or indirect practices, but to the solid recommendation of a good character. He will indulge his benevolent feelings as a man, and conform to his principles of duty as a Christian, by relieving the maladies of the poor :—but he will never attempt to gain the patronage of the rich by unworthy services, or degrading concessions. In his general conduct, he will prove, in the most extended acceptance of the word, the friend of mankind. He will show a becoming degree of condescension and affability to all, and will render the exercise of his profession equally the means of general good and of his own particular advantage and reputation. He will be convinced that these points cannot be secured by a narrow and selfish disposition, by a peculiar formality of dress and manners, or affected airs of importance and mystery. The true dignity of the profession can only be maintained by the superior knowledge and abilities of those who follow it, by their liberal manners and conduct, and by that candour, which disdains all duplicity and artifice, all superciliousness and servility, and which require only to be known, to make their possessors the general objects of esteem and honour. For those qualities which do credit to the medical character, it is superfluous to have recourse to more particular description ; as they can be fully exemplified in the lives of Radcliffe, Freind, Mead, Arbuthnot,

buthnot, Fothergill and many others, who hold a distinguished place among the sons of Esculapius, and adorn the biography of their country.

III. THE CLERICAL PROFESSION.

Of all the professions there is no one which includes such important duties as that of a Clergyman. It is the immediate object of his labours to diminish the evils and increase the comforts of life, by inculcating the knowledge and recommending the practice of religion, and by preparing the minds of men for the happiness of a future life. As it is his duty to state and interpret the revealed will of God, to reclaim the vicious from their sinful conduct, comfort the afflicted in their distress, and confirm the good in the pursuit of virtue, it is not difficult to infer what ought to be his attainments and qualifications, and what his character and conduct.

Lamenting the levity and the indifference of some, who enter into Holy Orders, without considering the importance of their sacred office; reprobating the selfishness and the wickedness of others, who merely make it the road to wealth and luxurious indulgence; we will consider the case of a
young

young man, who is induced *by proper motives* to undertake the pastoral care, and who directs his studies and regulates his conduct in such a manner, as is consistent with a becoming and rational sense of duty.

He begins with considering the divine appointment of his profession, its serious nature, and its most important end. He observes the considerable portion of time and industry, which is devoted to the other professions, to the attainment of the elegant arts, and even to the most common occupations, in order to acquire a due proficiency; and therefore he concludes, that a proportionable degree of application is necessary for his own, which justly claims the superiority over them all^a.

Diligent

^a “ Si agnoscis dignitatem, da operam ut glorifices susceptam functionem; si difficultatem, abjice socordiam, & vigila; si periculum intelligis, cave ne declines ad dextram, five ad sinistram: si præmium consideras, ne te pigeat ullius difficultatis. Quocumque verteris oculos, est quod excitet sollicitudinem tuam; si sursum aspicias, vides quis sit, qui tibi munus istud delegavit, vides paratum stipendium; si circumspicias quæ te circumstant, vides oves Christi tuæ concreditas fidei; si in te ipsum descendas, agnoscis quantam animi puritatem, *quantam eruditionem*, quantam prudentiam, quantum caritatis ardorem, quantam fortitudinem exigat ista functio, quâ vel abstineas, si te cognoveris *parum instructum*, *vel eu-pares quibus est opus.*” Erasmi Ecclesiastes, lib. 1. I know of no book better calculated to give a Candidate for Orders just and elevated ideas of his intended profession; to inspire him with a
fervent,

Diligent application is particularly necessary at a period, such as the present, when free inquiry prevails so much in the world, and when scepticism and infidelity, abusing the information they are enabled to acquire in this enlightened age, display themselves in various forms, and attack, with shameless effrontery, that religion, and those sacred Establishments, under whose mild and indulgent protection they diffuse their calumny, and propagate their errors.

Equally removed from indifference on the one hand, and enthusiasm on the other, he embraces his profession from a deliberate preference, and full persuasion that it will afford him more frequent opportunities, than he could find in any other situation of life, to increase the glory of God, and advance the good of mankind. He is resolved to discharge his duties with zeal and diligence proportioned to their importance, and therefore cherishes such dispositions of mind as are best calculated to promote the great designs of his profession. He feels the most exalted and heart-felt satisfaction in performing all the offices of piety, fervent, yet temperate zeal in the exercise of it; or that can supply better general rules for the composition of his discourses, than the *Ecclesiastes* of Erasmus, from which this excellent passage is borrowed. The whole subject, expressed in easy and elegant Latin, is treated with great spirit. It is much to be regretted, that Erasmus was prevented by bad health from finishing this most excellent work, in a manner agreeable to his wishes.

and

and resolves to give in every instance of his conduct, to his public and private instructions, the effectual recommendation of a good example.

At the commencement of his theological studies he will retrace the grounds, upon which he has erected his belief in the fundamental truths of Christianity. He will review the principles of natural religion, and consider the arguments for the being, attributes, and providence of the great Creator and Governor of the world. He will peruse the Scriptures of the Old Testament, and will remark the intimate connexion, which subsists between its leading circumstances, such as the fall of man, the types and institutions of the Mosaic Law, and the regular succession of prophecies, with the great scheme of redemption developed in the New. He will review the external and internal evidences of Christianity, and examine all the proofs in such a manner, as not only to be fully convinced himself of the truth of revelation, but so as to be furnished with such stores of information, and to acquire by study and meditation such ease in the application of them, as to be ready, upon all proper occasions, to oppose the cavils of the sceptic, the infidel, and the sectarist, by giving, in compliance with the advice of the inspired Apostle, *an answer to every man that asketh him a reason of the hope that is in him*^b.

^b 1 Pet. iii. 15.

Unless his belief be founded upon *conviction*, and be the result of his own careful examination, is he not liable to be lulled into a criminal indifference, shaken by the assaults of false philosophy, or deluded by the visions of enthusiasm? In the situations, in which he may be placed, in company with the infidel, the sceptic, or the scoffer, or with Christians of various denominations, he will possess none of the requisite stores of knowledge, by the assistance of which he may discover the artifice or the ignorance of his opponent, and render his attacks ineffectual—he may be silenced, may be disconcerted, and may expose himself and his profession to disgrace and ridicule, unless he be firmly grounded in all the important points of Christian knowledge, and the discriminating doctrines of the Church of England.

The studies of his riper years will derive peculiar advantage from the progress he had previously made in polite literature and the sciences. By his knowledge of the Greek language, he will be enabled to read the New Testament in the original with ease and pleasure. Thus will he be well versed in that Book, which is the sacred repository of the words and actions of the Redeemer of mankind—the unerring guide of life, and the pure source of all his instructions. He will peruse it with a critical view to the particular style of each Evangelist, the idiomatic and foreign forms of expression, and the particular allusions to ancient manners and customs.

customs. He will be careful to compare one passage with another, and thus will illustrate the general meaning of the sacred Writers. He will call to his assistance the works of skilful commentators and critics, to enable him to see clearly the application of every parable and illustration, to explain difficult terms, and to follow to its full extent the chain and connexion of argument. "Let him carry on his researches with a pious, humble, teachable, and impartial spirit, guarding against preconceived opinions hastily adopted, against bigotry for particular systems, blind prepossessions in favour of a particular interpreter, and the prejudices of habit, of his place of education, or study of his relations and friends, and of his expected patrons. To earnest prayer for the superintending guidance of the Supreme Being, let him join his own assiduous exertions, and follow the path of truth, whithersoever it may lead him".

From his previous attention to logic and the elements of the sciences, he will reap an advantage similar to that which is enjoyed by a student in the Law. They will instruct him in the methods of clear and conclusive reasoning, and in following arguments by regular steps to the discovery of the truth, for which he searches. He will however consider the particular species of evidence, which

* Gisborne, vol. ii. p. 11.

belongs

belongs to divine revelation, and will carefully mark the difference between history, which depends upon *testimony*, and science, which is built upon *demonstration*. He will be careful not to confound the different modes of investigating truth, nor will he indulge a fondness for inquiry into metaphysical refinements, or subjects of abstruse speculation, which have no tendency to promote piety, or advance the interests of morality. Far from indulging in a cavilling disposition, he will be fully satisfied with those plain, direct, and positive evidences of revelation, which carried conviction to the minds of Newton, Barrow, Pearson, Clarke, and Paley.

The historical part of his studies will open a wide field to his observation. He will make himself well acquainted with the events and actions recorded in the Old and New Testaments, will trace the resemblance subsisting between the traditions and mythology of the Pagan world, and the details of the sacred narrative of Moses; he will illustrate his researches by reference to those authors, who have investigated the subject of Jewish and Christian antiquities. He will apply the principles of sacred criticism to the external evidences of Scripture, examine the particular age of the author of each book, the purity of the text, and the condition and value of the most approved manuscripts, and thus will ascertain the authenticity of all those writings,

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which

which compose the canon of the Old and New Testaments^d.

The perusal of *Sermons*, more particularly of those which have been written by divines of the Church of England, will be found to merit considerable attention. By their assistance the student will with ease increase his stock of theological knowledge, gain the explanation of many difficult passages of Scripture, and see subjects discussed with peculiar ability, and placed in various points of view. And surely no less satisfaction than improvement will result from his application to those discourses, which display the rich eloquence of Barrow, the energy of Tillotson, the solid sense of Sharpe, the animated descriptions of Sherlock, the perspicuity and close argument of Clarke and Powel, the pregnant brevity of Ogden, the precision of Secker, and the beautiful imagery of Seed and Tottie.

Such writers will improve his ideas of theological criticism, and render him important service, when he proceeds to the composition of sermons. They will assist his conceptions of his subject, and give exactness and arrangement to his thoughts. They will set before him a variety of arguments, expressions, and illustrations, and furnish numerous hints, which he may apply to his own immediate purpose.

^d For useful remarks on preparatory studies see *Erasmi Ecclesiastes*, lib. ii.

When he proceeds to *the Composition of Sermons*, he will reap the advantage of his previous attention to the beauties of language. He will then be sensible of the benefits arising from the perusal of works of criticism, and the cultivation of a pure taste.

The style of a young divine must depend upon the condition of his hearers; if they be of the common class, let him imitate the manner of Wilson and Burder: if they are of a superior rank, Atterbury and Sherlock may be proposed as excellent models of composition. His arguments ought to be concisely stated and clearly expressed, his divisions few, and his discourses directed rather to the reason than the passions of his audience. He may be allowed sometimes to indulge in figurative ornaments, as they will give light, elegance, and spirit to his sermons. Pompous phrases, learned quotations, and remote allusions ought carefully to be avoided, as they injure the unity and simplicity of a discourse, and are more calculated to place the writer in an ostentatious point of view, than to familiarize his subject, or edify his hearers.

The perusal of the sermons of others ought rather to stimulate industry than encourage idleness. In appropriating them to his own use, he will show his judgment by selecting the best topics, and adapting them to the situations and circumstances, errors, doubts, prejudices, vices, and spiritual

ritual wants of his own congregation. He will be sensible however, that the assistance he borrows from others is weak in comparison with what he derives from his own mind; and that the instruction, which flows from his own heart, his own reflections and observations, will not fail to make the deepest impression upon his hearers, which is the great and important end of the labours of the pulpit. Another encouragement to composition arises from considering, that by practice the difficulty of writing will be gradually lessened, and that the writer will in time be no less surprised than pleased by discovering how much in a few years his later sermons surpass his first attempts^e.

With respect to the mode of delivering a sermon, it may be observed, that the advice of a judicious friend, as to the management of the voice, and the propriety of gesture, will be of much more use than volumes of instructions. These can no more lead to perfection, than studying the most exact theory of music can enable a person to play well upon an instrument, to which end application and practice can alone conduce. In like manner a good delivery must be the effect of repeated trials. Precepts may improve the judgment, but will give little aid to the power of

^e See an excellent letter written by Dr. Johnson to the son of a friend on taking orders. Seward's Biograph. vol ii. p. 602.

performance—they may form critics, but cannot make speakers^f.

The principal fault attributed to the divines of the Church of England is, that they are remarkable for a cold and inanimate mode of delivery. This circumstance points out the advantages, which formerly arose from the custom of preaching without the assistance of a written sermon. The preacher then gave way to the current of his own thoughts, and expressing himself as in animated conversation, transfused, without any diminution of their heat and strength, his own sentiments into the breasts of his hearers.

Impressive as this practice certainly was, yet it may be remarked, that the present mode of delivering sermons has peculiar advantages. Sermons by the help of reflection are more correctly composed, with reasoning more just, instructions more judicious, points of faith and doctrine more fully and truly explained, and what is of great importance, with more regularity and method. As the divine of the Church of England is by custom confined to one method, he should study to improve it as much as he can. As that extemporaneous discourse, which approaches the nearest to a written sermon in regularity of composition, and purity of

^f Lawfon's Lectures on Oratory, p. 411, &c. This author merits the particular attention of every young clergyman.

style,

style, is the best; in like manner among the written sermons, that is undoubtedly most excellent, which is composed with the easy air, and pronounced with the unaffected warmth and fluency of the extemporary.

Nothing is so impressive, or tends so much to the attainment of excellence, as the sight and the contemplation of living example. It is much to be lamented, that we have no *public schools of eloquence in our Universities for the instruction of young divines* in that species of delivery, which is necessary to give pathos, dignity, devoutness, and spirit, to their mode of performing the various services of the Church—in the reading desk, the pulpit, at the baptismal font, and the altar. Until such an institution be established, we must refer to those, whose practice requires only to be generally known to be highly admired, and zealously followed. Happy are they who have an opportunity to be edified in the performance of the sacred services, by the emphatic correctness of a PORTEUS, the solemn tones and impressive dignity of a PARR, and the devout, judicious, and unaffected elocution of a MALTBY. Were the public duties of piety thus generally performed throughout the nation, is it not probable, that the crowds, which now fill the conventicles of sectarists, would resort with eagerness to their respective churches, and attracted by the *manner* in which the service of the Church is performed, would enjoy the additional advantages of solid and truly edifying instruction?

Should the young divine be resolved to make the greatest improvement of his time, he will discover, that the occupations and the active duties of a parish-priest are not incompatible with his studies. He will accordingly not remain contented with those attainments only, which enabled him to obtain Holy Orders. He will devote a considerable share of his leisure to add to the stock of his learning, and make his application no less a matter of inclination than of duty. " Literature, and sacred literature in particular, is requisite to a Clergyman, not only as it is necessary to the edifying discharge of his pastoral duties, but as it forms and shows the turn of his mind, influences and implies his habits of life, fills up his time, makes him happy at home, detains him from pursuits improper in kind, or excessive in degree, or keeps his mind in a due tone for every work of his ministry. *In every view it is a vital part of his character*^s.

As the opinions of mankind have varied in all ages respecting the interpretation of the truths of revelation, he will observe, that controversial writings form a considerable part of theological studies. He will therefore take a general view of the most remarkable controversies in their chronological order, and trace their origin, progress, and effects. He will remark, that in the earliest ages of the Church the Apologists were obliged to de-

^s Dr. Napleton's Advice, p. 84.

send the faith against the bigotry of the Jews, and the idolatry of the Heathens; that at the Reformation the Protestant contended with the superstitious advocates for Popery—and that in the present age, a divine must resort to the ancient weapons of orthodoxy, to oppose the advances of Heretics, who corrupt, and of Infidels, who deride the faith. He will therefore furnish himself with those arguments, which may be opposed with the best effect against the errors of his own times. While however he is prepared “earnestly to contend for the faith,” and is never regardless of his solemn engagements, to maintain the “good fight,” he will remember, that the weapons of his warfare are spiritual, that it is his duty to promote his cause by tempering his zeal with candour, by opposing moderation to violence, and charity to malice; and that all rancour, prejudice, and personality, ought to be banished from discussions, which have the glory of God and the establishment of truth for their momentous objects.

And mindful of the solemn promise, which he made during the ceremony of ordination, he will be diligent in reading the holy Scriptures, and the lives of eminent and pious men, particularly the divines of the Church of England; and thus he will cherish a devout frame and temper of mind, and increase his relish for spiritual pleasures. His studies will assist and give vigour to his professional occupations: they will draw off his mind from the levity, folly, and selfishness of the world, and make

him regard with proper indifference the occupations, which consume the irrevocable hours of the idle and the dissipated. They will keep in his view the bright examples of the patriarchs, prophets, and apostles, and of his divine Master himself. They will confirm his faith, increase his zeal, and encourage him to run the race of duty with unremitting activity and perseverance, whether he obtains the dignity of a Prelate, acquires the competency of a Rector or Vicar, or even continues through life in the humble yet useful sphere of a Country Curate^h.

To the call of active duty he will be ever attentive. Anxious to prove the efficacy of his holy Religion at a time when suffering humanity most earnestly implores his aid, he will not avoid, or rather he will be anxious to visit the bed of sickness. He will endeavour to compose the anguish of mind and the perturbation of spirits, during the dreadful visitations of disease, and the pains of expiring nature. He will express, from deep

^h —“ Apud Deum major est dignitas ejus qui quamvis pusillum & humilem gregem bonâ fide curat, quam qui gemmatis coronis, pedis aureis, reliquoque strepitu sese venditant. Audi igitur pastor exigui rusticanique pagi, agnosce dignitatem tuam, non ut intumescas, sed ne muneris tui gloriam rerum humiliorum admixtu contamines. Non refert quam numerosus aut splendidus grex tibi obvenerit, sed illud refert, ut pro sorte credita Domino fœneratori tutum adferas. Nec tam spectato *quid* commissum sit, quam *qui* commiserit.” Erasm. Eccles. lib. 1.

conviction of the divine energy of his holy faith, the language of consolation, and speak peace to the troubled soul. He will convince the sufferer of the necessity of a Redeemer, and display the blessings of his gracious promises: he will endeavour to raise his mind above the sorrows of the world, and fix his attention upon those sublime and permanent enjoyments, which lie beyond the grave, and are centered in a blissful immortality. Thus will he support the true dignity of that religion, which can best instruct mankind to bear pain and sickness with fortitude, and to resign their souls to death with composure, and even with gladness.

A *pious, learned, and diligent* divine is one of the strongest supports and brightest ornaments of his countryⁱ. In his general intercourse with mankind, while he maintains his dignity, he is free from formality or moroseness; enjoys society, but avoids its dissipation and its follies, and knows the value of time too well to sacrifice any very considerable share of it to mere amusement. To those, who differ from him in religious opinions, he shows firmness of principle without asperity of conduct, as he is ever mild, gentle, and tolerant. He warms the hearts of his flock by his fervent

ⁱ See the excellent description of a clergyman by Erasmus, and that description exemplified in the characters of Archbishop Warham and Pope Gregory. Eccles. lib. 1. See likewise an account of the Life of the pious Dr. Townson, prefixed to his work on the Resurrection,

and unaffected piety, and he enlightens their understandings, confirms their faith, and invigorates their practice by his judicious and impressive discourses. In his private admonitions he is diligent in giving advice, and delicate in his manner of doing it; always considering whether the means he employs of reconciling animosities and reprov- ing vice are best calculated to answer the proposed ends. He maintains a proper intercourse with all classes of his parishioners, but he is neither arrogant to the poor, nor servile to the rich. To the indigent and deserving he is a constant friend, and protects them from the oppression of their superiors: he relieves their wants as far as it is in his power, and reconciles them to their laborious and humble stations, by the most earnest exhortations to patience and contentment. He is the composer of strife, and the soother of outrageous passions, and no less the temporal than the spiritual minister of peace. His family is the model for all others in their attention to private and public duties; he is the general object of esteem to all, except the malignant and the en- vious; and he has the happiness to observe, that, as he advances in life, the respectability of his character gives additional efficacy to his instruc- tions, and both increases the honour and promotes the diffusion of his holy Religion.

“ The imagined presence of a wife and good man has been recommended as a convenient guard to private conduct. How would this thought or
action

action appear to Socrates, or Plato, or Aristides?" The parochial minister may with equal advantage suppose the ocular inspection of his spiritual Overseer, and anticipate with greater feeling his censure, or his approbation. If the fear of solitude, or vanity, or idleness, should draw him from the scene of his duty to the provincial town, to the camp, or the capital, he may seem to hear the voice of his elder brother—*With whom hast thou left those few sheep in the wilderness?* The reproach may possibly vibrate in his ear, till it rise to the expostulation of a higher Friend and Monitor—*Simon, son of Jonas, lovest thou me?* Happy is the Clergyman, who, under the impulse of all these motives, discharges with unabated diligence the sacred, useful, honourable office of a parish-priest; and blessed is the congregation, who receiveth and heareth him with a grateful and attentive mind^k.

The day will come, when the Son of God, the great Teacher of Christianity, will appear to judge the world in righteousness. His minister, who has thus been *an example in word, in conversation, in charity, in spirit, in faith, in purity, who hath taken heed unto himself and all his flock, over which the Holy Ghost hath made him overseer*, may then meet his congregation in pious hope, that his labours, through the mercy of an all-gracious Redeemer, will be accepted;—and what tongue can

^k Dr. Napleton's Consecration Sermon, p. 107.

describe, what imagination can conceive the ecstatic transports of him, who, *because he has turned many to righteousness, shall shine as the stars of heaven for ever and ever*, and shall be welcomed to the realms of eternal glory with these gracious expressions of acceptance, "WELL DONE, GOOD AND FAITHFUL SERVANT; ENTER THOU INTO THE JOY OF THY LORD¹!"

¹ 1 Tim. iv. 12. Dan. xiii. 3. Matt. xxv. 21.

THE CONCLUDING CHAPTER.

IN the preceding pages, I have endeavoured to execute my proposed design, by sketching the outlines of general knowledge, and opening the various prospects of Religion, Learning, Science, and Taste to the young and studious reader ; and in the discussion of every subject I have omitted no fair opportunity *to increase his zeal for the service of true Religion, and strengthen the ties of genuine Patriotism.* My plan however would be incomplete, were I to conclude this work without subjoining a few considerations, which will be stated with more freedom, and urged with greater earnestness, because they have not been sufficiently insisted upon by the numerous writers upon these subjects, although I am sensible, from long experience and attentive observation, that they are of the *highest importance.*

To all who feel a proper regard for the dearest interests of society, *Education* must appear to be a subject of the most serious concern, as it has the most powerful influence in forming the character, inculcating the principles, and promoting the happiness of the rising generation. And such are the *peculiar circumstances* of the *present times*, and the numerous and unprecedented dangers, to which young men are now exposed, that it can hardly be questioned,

questioned, whether there was ever a period in our history, when *greater docility and obedience* were necessary on their part; *greater circumspection* on the part of *their parents*; or *greater diligence*, aided by all the advantages of learning and experience, on the part of *their instructors*.

Writers of eminence and respectability, who were remarkable for their accurate observations upon the conduct of mankind, have drawn very gloomy pictures of the depraved manners of the last century. Berkely, the celebrated Bishop of Cloyne, and Hartley, the ingenious author of the *Observations on Man*, did not hesitate to attribute much of this national degeneracy to neglect in the conduct of education, particularly among the higher ranks of society. But had these writers lived in the present times, can it be seriously asked, whether they would have found no additional subjects for their complaints; or rather would they not have apprehended that greater and more alarming dangers than those, which impended over their contemporaries, would arise from the prevalence of evils now existing? and would they not naturally, from their peculiar habits of thinking, have been led to predict the growth of the most luxuriant mischief from the introduction of those foreign seeds of impiety and insubordination, which the enemies of our religion and our government have of late years laboured with increased assiduity to sow in our English soil?

Such

Such conjectures are confirmed by those authors who have recently remarked the various and considerable changes, which have taken place in the opinions and the conduct of their contemporaries^m. “ In consequence of the tide of wealth, which our extensive commerce has caused to flow into this country, the luxury and dissipation of the higher orders of society have reached an unprecedented height; while the public opinion of high birth and hereditary honours has sunk far below their former estimation. The rage for public amusements, and for crowded assemblies of persons of fashion, who meet for no purpose but to destroy time, and encourage the selfishness of gaming, has gone far to extinguish their domestic pleasures, and to banish rational and refined conversation. The distinctions formerly preserved among the different ranks, which were once reputed the great preservatives of decorum and order, are now neglected as unnecessary, and ridiculed as formal. The doctrines of liberty and equality are not confined to speculators on government, or political declaimers alone, but are introduced into common habits of thinking, and general modes of acting: among other mischiefs, to which they have given rise, they have encreased the self-sufficiency of young men, encouraged the indulgence of their passions,

^m See Mrs. H. More on Female Education; Bowdler's Reform or Ruin; Bowles's Reflections on the State of Society; Mrs. West's Letters to a Young Man; and Dr. Barrow on Education.

flattered their vanity, led them to regard government of every kind as tyranny, religion as superstition, and the laws and regulations of all former ages as incompatible with the rights of their nature, and unworthy of the dignity of their understandings. The general reverence for the experience of age and for the privileges of authority is greatly diminished, and this change of opinion and laxity of principle are observed to be in no instances more conspicuous than in the relaxation of parental authority, the indulgence of the appetites and inclinations of the young, and the confident manners, and sometimes the open disobedience of children to their parents."

These are the most striking characteristics attributed to the present times; and whether the description be allowed to be precisely accurate, or only partly just, it is our earnest desire, as well as our urgent duty, even supposing that a relaxation of principle, an immoderate pursuit of pleasure, and an impatience of authority and restraint have not yet pervaded any considerable part of the community, to sound the alarm of approaching danger, and to point out the best means of counteracting such enemies to our present peace and future happiness.

Awakened therefore by apprehensions of mischief so threatening to the morals of the young, unless vigorous measures are adopted to prevent it, and
prompted

prompted by no motive, except that which the love of my country inspires, let me be allowed to address my final exhortation upon this momentous subject to those, to whose especial service my present labours are devoted. Let me calmly remonstrate with such, as have already imbibed the principles of the *New Philosophy*, but have not drank so copiously of its pernicious draughts as to be wholly intoxicated; and let me caution those, whose lips are yet pure and un sullied by its taste, before remonstrance may be fruitless, and all caution vain—and let me earnestly intreat them all, if they have any due regard for their own comfort, respectability, and happiness, to listen to that sound and salutary advice, which will not only diminish the labour of their Teachers, but augment the pleasure of knowledge, and give due efficacy and success to the *established* modes of education.

The great objects more immediately requisite for young men to attend to are, PIETY TO GOD—OBEDIENCE TO PARENTS—the IMPROVEMENT OF TIME—the DILIGENT PURSUIT OF THEIR RESPECTIVE STUDIES—and an IMITATION OF THE VIRTUOUS AND HONOURABLE CONDUCT OF THEIR ANCESTORS—such will prove the best and the most effectual preservatives against the reigning evils of the times, the vices of libertinism, the folly of innovation, and the sin of infidelity.

I. Let me recal your attention to the first and the most important part of my work, and conjure

you, my young reader, by the most affecting considerations which can influence the mind of man—by your reverential awe of your great Creator—by the regard you owe to your immortal soul—by your solemn professions as a Christian—by your ardent desire of comfort in this world, and of happiness in the next, to adhere with inflexible firmness to your religious engagements. Prove your belief in the truths of Christianity, the evidences of which you have examinedⁿ, and to the rewards of which you aspire, as the most sublime objects of all human ambition, by your conformity to the institutions of the established religion of your country. Keep alive the holy flame of fervent and unaffected piety by the practice of *private*, as well as *public* devotion; and never let the sun begin his daily course without recommending yourself and your friends to the protection of the great Author of your being—the Giver of every blessing you can hope to enjoy. Be devout without ostentation, and religious without hypocrisy. Remember that devotional exercises are recommended by the concurrent voices of all nations—that they are particularly enjoined by the precepts of our holy religion, as the most effectual means to maintain that spiritual intercourse between man and his Maker, which is the highest privilege of rational beings. Recollect that prayer is a preservative against the allurements of sin, and the snares of

ⁿ See vol. i. p. 17, &c.

temptation;

temptation; that most acceptable in the sight of God is the sacrifice made by innocence; and that “the remembrance of your Creator in the days of your youth,” conducive as it is to the support of faith, and the performance of duty, will prove a source of the most elevated hope, and the purest joy, in every period, and in every trial of your life.

II. FILIAL PIETY is the prime affection of the soul, and one of the most sacred and important of all social relations. It is the voice of nature, sanctioned by the authority of reason and revelation, and derived from the best and purest feelings of the heart. Consider that its violation was always regarded, by the wisest and most enlightened people, as the most flagrant breach of morality, and therefore was punished with the severest rigour. Reason fully justifies the principle, upon which the laws of the Jews, the Romans, and the Chinese, against refractory and undutiful children were founded; for filial disobedience is a sure mark of that insensibility, as well as of that ingratitude and injustice, which have a direct tendency to a violation of order, and the commission of crimes. Filial love, on the contrary, is the certain indication of such an amiable temper, as will display itself with uniform benevolence in all relations, in which hereafter as a man you will stand to society. It is the root of the most endearing charities; its branches are vigorous, and will bear the most pre-

cious and the most delicious fruit. There is the best reason to presume, that an affectionate son will become an affectionate brother, friend, husband, and father. When arrived at the age of mature reason, you will be sensible, that the restraints formerly laid upon you by your parents were the effects of true regard, intended to shield you from evil, not to debar you from good—to guard you from danger, not to contract the circle of your pleasures, for the sake of asserting authority, or displaying power. Let, therefore, no foolish vanity, no levity or caprice of temper, no arrogance, arising from superior fortune, or the consciousness of superior or more fashionable accomplishments, so far possess your mind, and blind your understanding, as to induce you to treat your parents with inattention or disrespect. Always remember, that your duty to them is inferior only to that which binds you to the great Author of your being; and that neither the implicit submission of childhood, nor the return of affectionate offices in more advanced age, can ever cancel your obligations for a *father's protection*, or repay the solitudes of a *mother's tenderness*.

In the practice of filial obedience, attend more particularly to *one* instance of it, which seems to be highly reasonable, and strictly expedient. I allude to the *choice of a profession*. Your parents have an undoubted right to decide for you; and their experience and knowledge of the world may be

be fairly presumed to lead them to such a determination, as is most proper and advantageous upon the whole. Be not influenced in a concern so highly conducive to the happiness of your life, by a predilection, founded upon your own caprice, or the taste of your companions, when the decision ought to be made with reference to your peculiar temper, circumstances, and abilities, of which you, from your tender age and inexperience, must necessarily be an incompetent judge. When you mix with the world, you will behold the unhappy effects of persons having been brought up to employments, for which neither nature nor education have fitted them; you will remark instances of professional men, who are neither diligent, studious, nor serious, and who have no *professional* zeal, and are therefore constantly liable to the ridicule of their friends, and the censures of the public, by acting out of character. Should you be admitted to their confidence, you will hear them lament, that they were the victims of their own choice, or of some consideration, which had no reference to their abilities, or their dispositions. You may observe, that, as the pursuits of life are various, a sphere of action may be found suitable to each particular turn of mind. To the bold and the enterprising, the Army and Navy present opportunities of exertion; to the serious and contemplative the Church; to the acute and aspiring the Law; and to the diligent and persevering the various occupations

tions of the Merchant°. Let not your pride, or your vanity, be suffered to take the alarm, and create prejudices against any situation, which is advantageous and respectable. Judge not by specious appearances, but attend to *all* the benefits it may secure to you in the course of your life, and the rewards, which it may bestow upon your care and assiduity. When you have once been directed to make a judicious choice, let no caprice induce you to repent of your option, no unsteadiness relax your diligence ; persevere with constancy in the path, to which experienced guides have conducted you ; and be assured, that steady and unremitting exertions will be rewarded by adequate success.

As the mild suggestions of parental advice gradually succeed the control of that authority which was adapted to your weaker years, improve the intimate connexion by unremitting assiduity, and unreserved confidence ; and qualify yourself to be the most agreeable associate of your parents. And if, as they sink under the weight of years, you derive a pleasure from alleviating their pains, and soothing their infirmities, the tie, which will bind you to each other's hearts, will be love inexpressible—formed from the first emotions of your sensibility,

• Hic patet ingenii campus, certusque merenti
Stat favor, ornatur propriis Industria donis.

Claudian.

and

and strengthened by length of time, and the constant reciprocity of affectionate offices^p.

III. Reflect that time pursues his flight on rapid wings—and that the hours of youth, like the waters of an impetuous stream, roll on never to return. You must be sensible, that the portion of life appropriated to your education is not, if duly considered, a season for pleasure and pastime alone—that the days will come, when the engagements of the world will allow you little leisure to increase your stock of knowledge by study, and to improve by regular application those talents, which Providence has committed to your care,—for the use of which you are accountable to conscience, to society, and to Heaven; from the abuse and neglect of which will spring deep regret and unavailing sorrow; but from their cultivation will arise delight of a self-applauding mind, and the respect and honour of the virtuous and the wise.

Do you enjoy the distinguished privilege of being a *Member* of one of the *Universities*? Whether your

^p Pope never wrote sweeter lines than those which were dictated by filial affection.

“ Me let the tender office long engage
To rock the cradle of reposing age,
With lenient arts extend a mother’s breath,
Make languor smile, and smooth the bed of death,
Explore the thought, explain the asking eye,
And keep awhile one parent from the sky.”

Prologue to the Satires

destination

destination has led you to the abodes of learning and science, which adorn the banks of the Isis, or the CAM, in whatever academical rank you may be placed, fail not to improve every opportunity, and to seek every means of acquiring knowledge, afforded by tutors and professors; cultivate the acquaintance of the learned, the accomplished, the serious, and well-disposed; disregard the solicitations of the idle, and resist the allurements of the dissipated, the intemperate, and the irregular, who may urge you to drain the bowl of intoxication, and transgress the bounds of discipline. Look to the *result* of their misconduct, and you will remark, that, far from affording any true pleasure to an ingenuous mind, it terminates in disgrace, punishment, and ruin⁹. Frequently meditate upon the actions, and familiarize yourself to the works of the great and the good, who have inhabited the same mansions of learning, trodden the same paths, and experienced the pleasures of solitude, or social converse, in the same delightful gardens and groves. Let the classic scenes once honoured by

⁹ From a work deservedly received into our schools in Oxford, as a most excellent subject of Examination in Ethics, I select a passage worthy of the deepest consideration of every student in every University. "Suscepisti onus grave et Athenarum et Cratippi: ad quos cum tanquam ad mercaturam bonarum artium sis profectus, inanem redire turpissimum est, dedecorantem et urbis auctoritatem, et magistri. Quare quantum conniti animo potes, quantum labore contendere (si discendi *labor* est potius quam *voluptas*) tantum fac ut efficias: neve committas, ut cum omnia suppeditata sint a nobis, tute tibi defuisse videare." Cicero de Officiis lib. 3. c. 2.

a MILTON or a DRYDEN, a PEARSON or a TILLOTSON, a NEWTON or a CLARKE, a LOCKE or a CLARENDON, an ADDISON or a JOHNSON, a BLACKSTONE or a JONES, give additional strength to your resolutions, animate your endeavours with new ardour, and inspire you with greater alacrity in the pursuit of your studies, and the cultivation of every moral and intellectual excellence^r.

IV. Consider that no habit is so conducive to the accomplishment of the great ends of education, as a habit of *Diligence*. Idleness is the parent of every vice; but well-directed activity is the source of every laudable pursuit, and honourable attainment. It is peculiarly adapted to the frame and constitution of youth, promotes good humour, and is conducive to health. Indolence and inactivity are no less subversive of every purpose of mental improvement, than of the general happiness of life. An idle boy will gradually lose the energy of his mind, will grow indifferent to the common objects of pursuit, except such as stimulate his passions; and when he advances in life, he will with difficulty be prevailed upon to make any important exertion, even for the promotion of his own inter-

^r Movemur nescio quo pacto ipsis locis, in quibus eorum quos diligimus aut admiramur, adsunt vestigia. Me quidem ipsæ illæ ATHENÆ NOSTRÆ non tam operibus magnificis, exquisitisque antiquorum artibus delectant, quam recordatione sum-
morum virorum, ubi quisque habitare, ubi sedere, ubi disputare solitus sit, studioseque eorum etiam sepulchra contem-
por. Cicero de Legibus, lib. 2.

est,

est, and much less for that of his friends. The character of a sluggard—of him, who loses the pleasant, the healthy, and the precious hours of the morning in sleep, and the remaining part of the day in indolence, is justly reputed contemptible. While his powers of mind remain torpid, the diligent applies his activity to the most useful ends. His steps may not be uniformly rapid, or his actions always conspicuous; he may not attract the gaze of mankind, or move in the circle of fashionable levity and dissipation; but you may observe, that by habitual dexterity of conduct, and the practice of business, he is qualified to meet the difficulties and fulfil the duties of any situation, in which he may be placed; and you will frequently see him by his unremitting perseverance acquire objects of fortune, distinction, and honour, which men of unimproved talents very rarely, if ever obtain.

If you take an extensive survey of the world, you may remark, that nothing great or laudable, nothing splendid or permanent, can be effected

“Excellence is never granted to man, but as the reward of labour. It argues indeed no small strength of mind to persevere in habits of industry without the pleasure of perceiving those advances, which like the hand of a clock, whilst they make hourly approaches to their point, yet proceed so slowly as to escape observation.” Sir. J. Reynolds. “Cui non sunt auditæ Demosthenis vigilæ, qui dolere se aiebat, si quando opificum antelucana victus esset industria?” Cicero. Tusc. Quest.

without the exertion of diligence. Are not the treasures of fortune, the fruits of industry, the acquirements of learning, and the monuments of glory, to be referred to its animating influence? Behold the student engaged in poring over the volumes of knowledge by his midnight lamp, and stealing his hours of study even from the season of repose; behold the peasant roused by the dawn of the morning to pursue his daily toils along the furrowed field; repair to the manufactory of the artificer, and amid the various divisions of labour, observe with what alacrity all the sons and daughters of industry are plying their incessant tasks; or visit the crowded haven, where the favourable gales call the attention of the vigilant mariners; and you will remark, that the whole scene is life, motion and exertion. In these various situations, in every nation of the globe, from the ardent and enterprising sons of Britain, to the myriads, who people the empire of China, you may observe, that the principle of diligence, like the great law of creation, which causes the planets to perform their invariable revolutions, pervades each busy scene, and throughout the universe actuates the race of men for some useful purpose.

V. Finally, never wearied in exploring the means by which your mind may be directed to its proper end, and your ardour for excelling in every thing fair and good may be increased, turn, frequently turn to the memorable pages of our English history, and consider with due attention THE ILLUSTRIOUS

CHARACTERS AND LAUDABLE CONDUCT OF YOUR ANCESTORS. You will find that they were men, favoured by nature with masculine sense and profound judgment, not eager for innovation, but as deliberate in forming, as prompt to execute their designs. After long oppression, under the papal yoke, they vindicated the rights of reason and conscience, became the strenuous supporters of the Protestant faith, and the advocates for a mild and generous toleration. They framed a system of government, the glory of which is limited and hereditary monarchy; and they founded it upon the basis of equal law. To their wise resolutions in council, and to their invincible courage in the field, we owe the blessings of our invaluable constitution. They were remarkable for plainness and simplicity of manners, honouring inbred worth, and raising merit from the humblest station to the most exalted sphere; and yet rendering proper homage to noble birth and high rank. They preserved the due distinctions between the various orders of society, and were sensible of the utility of a just and regular subordination. Behold the monuments of their regard for piety and learning in the churches, colleges, and schools, which overspread the land; and consider the ample provision, which they made for the perpetuity of the blessings derivable from Christianity, and useful knowledge. They were lovers of their country to an enthusiastic degree, and prodigal of their blood in its defence; they were economical, generous, and hospitable; in no

were

respect inferior to the most distinguished people of antiquity—the illustrious natives of Greece and Rome—and in some circumstances rising to a greater elevation of moral and intellectual dignity, for they acted under the influence of a more temperate and more widely-extended liberty; and they were enlightened by the knowledge of a beneficent, holy, and sublime religion.

Such were the characters of our patriotic Sovereigns, who shielded their people from the oppression of a martial aristocracy,—of the Warriors, who fought at Cressy and Agincourt, at the Boyne, and La Hogue,—and of the illustrious Statesmen, who framed the plans of our legal polity. Such were our pious Reformers, who braved with undaunted courage the flames of persecution, to maintain the Protestant faith; such were the heroic Chiefs, the profound Philosophers, the eminent Poets; such were the ancestors, from whom we Britons trace our lineage, who have bequeathed to us the noble inheritance of their virtues, and the invaluable patrimony of their examples.

To advert to the conduct of those who were distinguished in former times by their merit, has always been considered an excellent and efficacious mode to rouse mankind from the lethargy of indolence to the labours of virtue. To what better instance can I appeal, than to the spirited description which Demosthenes gave of Aristides, Miltiades, and

and the heroic Greeks of their age, to rouse his countrymen to emulation"? We shall do well to recollect how strongly the influence of education was felt in reforming the manners of the Spartans. The great Lycurgus, by his prudent institutions, converted a luxurious and a dissipated people into a temperate and a martial community. And so long as the Romans adhered to their ancient maxims, they pursued their career of victory and glory: But to what more powerful cause than to the relaxation of pristine discipline, and the profligate manners of their noble youth, can we attribute the fall of their mighty empire*?

What therefore was the *Principle*, which raised the celebrated nations of old to such a pitch of honour, dominion, and renown? Was it the spirit of restless innovation, and avidity for political novelties? Was it the spirit of dissipation, extravagance, luxury or gaming? Was it not rather a system of laws adapted to the genius of the people, well established by authority, and long persisted in, without deviation from the original plan of each respective constitution? Was it not the peculiar genius of their wise establishments, inspiring the minds of their youths with noble sentiments from age to age, and directing their conduct through successive genera-

^u Ου γὰρ ἀλλοτρίοις ὑμῖν χρωμένοις παρὰδειγμασιν, ἀλλ' οἰκηόις, εὐδαιμοσὶν ἐξέσι γένεσθαι. — Εκ δὲ τῆς τα μεν Ἑλληνικὰ πύσως, τα δὲ πρὸς τῆς Θεῆς εὐσεβῶς, τα δ' ἐν αὐτοῖς ἰσῶς διοικεῖν, μεγαλὴν εὐχοτῶς ἐκτησαίη εὐδαιμόνιαν. Olynth. Γ. p. 98. v. 1. Edit. Allen.

* See vol. i. p. 435, &c.

tions to all that was fair and good? This spirit reigned among the Persians, the brave and virtuous companions of the elder Cyrus, and imparted its choicest influence to the Greeks and Romans of the purest times. And is it not, we may confidently ask, a SIMILAR, or rather a SUPERIOR SPIRIT, which has raised Great Britain to the glorious pre-eminence, which she has obtained among modern nations? Has it not fostered the valour of her heroes, the wisdom of her philosophers, the sagacity of her statesmen, and the skill of her artists? Has it not prompted them to such noble deeds, as have cast a blaze of glory round their names, which no clouds of envy could long obscure, no power of oblivion can ever extinguish^y?

If it be expedient at all times to preserve the spirit of our established institutions in its purest and most energetic state, it is more particularly necessary at such a crisis as the present, when we are involved in the evils of war, and all the resources and all the energies of the empire are called into action, to repress the encroachments of a bold, enterprizing, most ambitious, and most crafty enemy—an enemy who has laid the sovereigns of the continent prostrate at his feet, and been successful in all his machinations, except against England. This country alone presents the conspicuous object upon which the eyes of the universe are fixed; for

^y See vol. i. p. 107, English Language; vol. ii. p. 6, 40, English History; p. 335, &c. Commerce.

this is the only neighbouring state that maintains her independence, her laws, and her government, uncontrolled by the influence, and unbroken by the force of France. We are now engaged in a most arduous struggle, and the question is, whether there shall be true liberty left in Europe, or whether all its kingdoms shall wear the chains, and bow to the domination of one despot. The orators of France have exerted their ingenuity to establish the resemblance between ancient Rome and modern France, and between ancient Carthage and modern England, and they have endeavoured to show, that the two countries are running the same political career, which will terminate in the subjugation and destruction of *modern* Carthage. From our sketch of the roman history it appears, that the Romans abolished regal government, and expelled the royal family, laid all honours and distinctions open to the people at large, were a prey to faction, to democracy, and to aristocracy—that they combined with their struggles for liberty the spirit of military enthusiasm, subjugated the nations which endeavoured to subdue them, plundered the conquered countries of whatever was precious in the arts, became subservient to a perpetual dictator, and afterwards returning to the point from which they originally set out, revived the legal authority under a new name, and raised that dictator to empire.

This sketch bears no distant resemblance to revolutionary France from the murder of the best of
their

their kings to the establishment of the present military empire. Those, however, who are pleased with tracing this likeness, would probably not be inclined to carry it on to the subsequent events and circumstances of the Roman empire, although they have no right to cavil at our presuming to do so. Their policy or their fears might lead them to throw that part of the picture into the deepest shade, and not display with the same ardour for historical resemblances, the decline and fall of this modern Rome as rapid as its elevation; the future Tiberius, Nero, Galba, Otho, Vitellius, and Augustulus, who are to arise in the new dynasty, with all the odious appendages of savage and gloomy tyranny, and the eventful history closed with the lowest degeneracy, and the most complete subjection to the warlike hordes of the north of Europe. The comparison of England to Carthage would not hold in the least respect, had not Carthage been a formidable rival to Rome, and a commercial state. These are the only circumstances that are strictly analogous, and it is no difficult task to prove, that all others are totally unlike. Carthage was a large commercial city, surrounded by a small territory; Britain is of far wider extent—for London, whatever the French may imagine, is not the whole of England. Carthage carried on her wars almost entirely with foreign troops; and chiefly, by their assistance, endeavoured to defend herself in the last great contest at the battle of Zama; England exults in the support she finds in her native forces of the line, her hardy militia, and her pa-

triotic bands of volunteers. Carthage was stigmatised for proverbial perfidy; England is respected all over the world for honour as proverbial. Carthage was rude and unlettered; England is renowned for literature, science, and the arts.

One great point of dissimilitude there is, which the French Orators are studious to keep out of sight; but which we must take leave to place in a conspicuous point of view. Upon inspecting their maps they will see, that Carthage was situated upon a continent, whereas Great Britain is an ISLAND: This constitutes a peculiar, a wide, and a *most happy* distinction. Favoured by Providence in geographical situation, as in every thing else, the azure waves, as they roll around and encompass her on all sides, form her natural rampart. Even when the billows, raised by the furious storms, swell in the most tempestuous agitation, nature seems to tell us, that they rise for our safeguard and protection. Antient Rome was assisted in reaching her greatness by crushing, in an *early* period of their contest, the naval power of her rival. Inform us, ye sagacious Orators of France, if you can find any resemblance here; or, whether the suggestion of this indisputable dissimilarity is not as subversive of your argument as mortifying to your pride, and fatal to your machinations. Let the ambitious Leader, whom you delight to surfeit with your flattery, take his station at Boulogne; let him survey with ardent eyes and fervent wishes the white cliffs of Dover; let him crowd his flotilla with

with his numerous army: but will he order it to set sail to invade England without a convoy? Where is the convoy that was destined to protect it? Will he summon it from the harbour of Cadiz, or of St. Domingo? Alas! both Villeneuve and Leiffegues can give him substantial reasons to convince him, that such an order is vain; his fleets are either sunk in the ocean, or are armed by his enemy against him, and his sailors imprisoned in the centre of England, are secured from annoying their foes.

Were we, as we are turning over the pages of history, to indulge our choice as to the relative situation of two ancient and rival countries, we should direct the attention of these Orators to a more remote period;—we should open the work of Herodotus, the Father of Grecian History, where he describes the numerous forces of Xerxes poured forth for the invasion of Greece; we should point to the scene where the confident Despot takes his station on the lofty mountain, and beholds the sea-fight in the bay of Salamis between his combined fleets of slaves, and that of a free and high-spirited people, renowned no less for the arts of elegance than for maritime skill, whose rampart was the ocean, and whose defence their wooden walls; we should, with all due courtesy, allude to the sad reverse of fortune which Xerxes experienced, and bid them take a useful lesson from the disastrous event of his mad enterprize.

But how return'd he, say? This soul of fire,
 This fierce barbarian —————
 But how did he return? his navy lost,
 In a small bark he fled the fatal coast,
 And forc'd a dreadful passage thro' the flood,
 Choak'd with his slaughter'd troops, and red with blood:
 So Xerxes sped: so speed the conquering race;
 They catch at glory, and they clasp disgrace^z!

But if the object, which must ever be dear to all benevolent minds, and especially of all true Christians, if PEACE should again descend and settle upon our Island, such a peace as will be perfectly consistent with the security and honour of our Empire, and guarded by unequivocal proofs and pledges of the sincerity of the French Government; even such an event, beneficial as it may prove in many respects to the empire, is likely to expose the young and the inexperienced to *new* temptations. Britain, peculiarly calculated by nature, and highly improved by the industry of its inhabitants, for widely extended commerce^a, in all probability, will, in consequence of this auspicious event, obtain new supplies of wealth, and new means of luxury. The communication with our Gallic neighbours will be opened; and many of our countrymen, forgetful or regardless of the sufferings of those travellers, the victims of perfidy, who were condemned to suffer a miserable exile at Verdun, will be led by the most eager curiosity to visit the

^z Gifford's Juvenal, Sat. X.

^a See vol. ii. p. 335, &c.

banks of the Seine. The thoughtless votary of pleasure may smile at the assertion, but the true friend of Britain will be sensible of its important truth, that more extensive mischief is to be apprehended from the insidious arts of those natives of France, with whom our young travellers are most likely to converse,—from their soft allurements to luxury, and their licentious notions upon all subjects relating to morality and religion, than we have ever had reason to fear would result from the menaces of Gallic vengeance, and the power of Gallic arms.

We are told that in Paris every source of vice is opened, that gaming, intriguing, and theatrical amusements constitute the sole business of fashionable life; and that every species of dissipation is pursued with the greatest avidity. The ceremony of restoring the national religion was indeed performed with great parade, but unless the *Concordat* of the Pontiff, and the appearance of the first Consul in the church of Notre Dame could produce a miraculous effect, and instantaneously obliterate apostasy and infidelity from the minds of the *illuminated* part of the French people, we have no reason to expect that our countrymen will derive much moral or religious improvement from them. Those who are returned from Paris, before the present war, seemed to agree, *that the age of Chivalry was passed*; for ineffectual was their search for that high-bred, polished, and elegant society, which was

once the pride and the honour of France. Our travellers were pleased indeed with the splendid exhibitions of Painting and Sculpture, which adorn the galleries of the Louvre; but they were disgusted with the immoralities of the French, and their grossness of manners. This sentiment of disapprobation, which seems generally to prevail even among those who were *once* disaffected to their own country, is a proof, we may fairly presume, of our superior sense of decorum; and reflects the highest honour upon our English habits of thinking, and our English modes of Education^c.

And in the happy event of a Peace, if the French should be eager to visit this island, which they will certainly do, if they have any regard for their own improvement, let our young men uniformly preserve a noble ingenuousness of character, and show the excellence of their education by their firm and upright conduct. Let them convince their visitors, by a manly avowal of their sentiments, upon all proper occasions, that they are determined to persevere in the principles, in which they have been instructed; and that all attempts are vain and fruitless to quench the flame of their piety, to diminish the strength of their loyalty, or to sully the purity of their patriotism.

^c The more recent Accounts of Kotzebue, Holcroft, and Forbes unite to show, that this description is equally applicable to the *present* state of Paris.

The great and extensive advantages, which must necessarily accrue to society at large, from the proper education of persons in the higher ranks of life, will appear from considering the *Influence of their examples upon all around them*. If ignorance should be suffered to cloud their understandings, and immorality, resulting from a want of proper discipline, should disgrace their conduct, the injury done to society will extend to all its members. But if persons in the higher ranks be well instructed in their duty, and their conduct prove the rectitude of their principles, the beneficial effects of their actions, like the overflowing waters of a fertilizing stream, will spread far and wide in every direction, and the final result to the state will be highly important and eminently beneficial, as it will consist in general stability of principles, general regularity of conduct, and general happiness^a.

The rising generation, brought up in the true principles of religion, enlightened by general knowledge, and encouraged not less by the examples, than improved by the advice of their parents and their teachers, will be freed from the imputation of degeneracy; they will follow their ancestors in the

^a Ego autem nobilium vita victuque mutato, mores mutari civitatum puto. Quo perniciosius de republicâ merentur vitiosi principes, quod non solum vitia concipiunt ipsi, sed infundant in civitatem; neque solum obfunt, quod ipsi corrumpuntur, plusque exemplo, quam peccato nocent.

Cicero de Legibus, Lib. 3. C. xiv.

paths of integrity, honour, and true nobleness of conduct; they will be fortified against the attacks and the artifices of infidelity, and will persevere, as they advance in life, in every virtuous and honourable pursuit.

And may this indispensable and invaluable truth be for ever inculcated by parents and teachers, with a degree of sollicitude and zeal proportioned to the importance of the subject, and for ever remembered by the young, *that the honour of the BRITISH CHARACTER, and the stability of the BRITISH CONSTITUTION, must depend upon Religion, Virtue, and Knowledge, as their firmest and best supports.* In the higher ranks of society, and more particularly among PROFESSIONAL men, it is more immediately requisite, that these constituents of personal merit should be carried to the greatest perfection. Every sincere lover of his country therefore will be eager to promote, by all expedients in his power, that RATIONAL, ENLIGHTENED, and COMPREHENSIVE system of education, which improves and perfects all of them; and he will determine, that every channel to useful information ought to be opened, every suitable reward proposed, and every honourable incitement held out, which may stimulate our ingenuous youth to IMPROVE TO THE UTMOST OF THEIR POWER THE FACULTIES WITH WHICH PROVIDENCE HAS BLESSED THEM, IN ORDER THAT THE SEEDS OF INSTRUCTION MAY PRODUCE THE MOST COPIOUS HARVEST OF VIRTUE, AND THEIR CONSCIENTIOUS AND

ABLE

ABLE DISCHARGE OF ALL THE DUTIES OF LIFE,
MAY CONTRIBUTE EQUALLY TO THE HAPPINESS
OF THEMSELVES AND THEIR FRIENDS, AND TO
THE GENERAL PROSPERITY AND TRUE GLORY
OF THEIR COUNTRY.

ADVERTISEMENT

LIST OF BOOKS

THE following List will be found to include the titles
of a great variety of useful books in the different depart-
ments of Literature and Science, interspersed with occasional
remarks: It is intended to contain such works as are con-
sidered to inculcate and contain the best principles, and to in-
crease the progress of knowledge. Thus does it accord
with the professed design of this work, and it will likewise
be found to answer every useful purpose. Those who
are at a loss for a guide to direct them to the most valuable
authors may here find abundant information, and as the whole
collection presents a view of an elegant and compe-
tensive Library, it may be of great use to those who
wish to form a collection of the best books, and to class
them with propriety regard to their respective subjects.

Although the titles to which the Compiler originally in-
tended to confine himself in this collection, yet he is not
aware of mentioning any book from motives of omission.
He recommends no work merely because it is ancient or re-
cent; it is useful; solely for the goodness of the paper, or
the elegance of the type; but the volume which induces him
to notice any work is either his experience of its utility

world.

APPENDIX.

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ADVERTISEMENT

TO THE

LIST OF BOOKS.

THE following List will be found to include the titles of a great variety of useful Books in the different departments of Literature and Science, interspersed with occasional remarks. It is intended to contain such works as are calculated to inculcate and confirm the best principles, and to facilitate the progress of knowledge. Thus does it accord with the professed design of this Work, and it will likewise be found to answer other very useful purposes. Those who are at a loss for a guide to direct them to the most valuable authors may here find abundant information, and as the whole collection presents a view of an ELEGANT AND COMPREHENSIVE LIBRARY, it may be of great use to those, who wish to form a collection of the best books, and to class them with proper regard to their respective subjects.

Although the limits to which the Compiler originally intended to confine himself are much exceeded, yet he is not aware of mentioning any book from motives of ostentation. He recommends no work merely because it is ancient or because it is modern; solely for the goodness of the paper, or the elegance of the type: but the reasons which induce him to notice any work are either his experience of its intrinsic worth,

worth, or the character it has obtained among persons of sound judgment.

He has endeavoured to steer a middle course between the extremes of conciseness and prolixity of detail. Had he confined himself to any *single* publication, which immediately serves to illustrate each subject, he might have been charged with partiality in favour of a particular author, or with ignorance of similar works of equal, or greater merit. Had this list been more copious than it is, he might have been censured, as the servile transcriber of catalogues.

To avoid unnecessary detail, the *places* where the books were printed, and the *dates*, are only noticed when some particular reason seemed to require their insertion. The last Editions will generally be found to be the best; and for them inquiry must be made; but it is nearly impossible for the Compiler to keep pace with the rapidity of the Press; even at the time he is writing some new Edition is printing, and were he to notice the last he had seen, he might lead his Readers into an error, as they might suppose he recommended it in preference to any other, when he had no such intention.

He wishes his Readers to observe that the Titles of the Books which lead to the more particular explanations of his subjects, and which ought to be first perused or referred to, are printed in Italics. The other books, printed in the common character, either embrace a wider compass of observation, or treat of collateral or subordinate branches of knowledge. These may likewise be carefully read, or occasionally consulted with the greatest advantage. The pursuits of knowledge, like the duties of mankind, are of a progressive nature, and follow each other at different periods of time; so that in the advancing stages of life, leisure may be found to complete the regular studies of our early years, or to follow

follow a course of miscellaneous reading: it cannot fail to be pleasing to the student, after he has caught a view of the objects of information more immediately interesting to him, to have such as are more distant pointed out, and to be assisted in surveying the opening prospects of knowledge.

Although it would be desirable to be possessed of all the works enumerated in this list, yet the *purchase* of books must depend upon the circumstances of the student. His attention is therefore directed to those which he may be expected to peruse or consult, rather than find it necessary to buy. It is much to the advantage of those persons, who are fond of reading, as the price of every publication has of late been so considerably advanced, that access is open to public libraries in the metropolis and many other cities, to subscription societies in the country, and to university and college libraries for the senior students. In these ample repositories may be found maps, books of reference, and those expensive works relating to Natural History, which few private collections can supply.

Happy are they who have sufficient leisure from the business of life to gratify their fondness for useful and entertaining *Reading*. They gradually acquire the inestimable riches of the mind, with the peculiar advantage of being able to bestow them upon others, and to retain them for their own use, without any diminution of their possessions. Their books are the resources of solitude, the soothers of care;—they can calm the agitated spirits, render a man independent of the world for his amusement, and give him, whenever he pleases, a quiet and rational entertainment, in exchange for noise and business. They hold out an inducement for him to retire from the impertinence of the vain, and the folly of the ignorant, to enjoy the wit, the learning, and the experience of sensible men of all ages and countries. They provide an effectual antidote against
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that *ennui* which frequently preys upon the dissipated and the idle, and makes them chide the lingering hours of life; they preclude the necessity of frivolous amusements and the malevolence of censorious conversation, and by the introduction of new and entertaining topics enlarge the circle of social enjoyment, and enhance the value of colloquial intercourse.

Are we delighted with the bright images of original fancy, and do we enjoy the sublime strains of the first of classic poets? Homer places us on the walls of Troy or the banks of the Scamander; there we are spectators of the pathetic interview between Hector and Andromache; and there we behold the combats of the Chiefs of Greece and Troy, the beautiful Helen, and the enraged Achilles. Do we desire to survey the past, as described by the accuracy of the Historian? Herodotus recounts the myriads of Barbarians, who followed the standard of Xerxes, records the fall of Leonidas and his brave associates, and displays the disgrace of Persia and the glory of Greece. Are our researches directed to events and discoveries of modern times? We trace an Edward and a Henry through the career of their conquests, and accompany Columbus to discover a new world—we mix in the festive and serious scenes of Shakespeare, are admitted into the Paradise of Milton, examine the arguments of Locke, study the demonstrations of Newton, or view the wonders of nature as displayed by the accurate descriptions of Linnaeus and Buffon, of Pennant and Shaw.

These and numerous others are the pleasing subjects which may occupy the attention of him who is fond of reading; and one of the strongest and most honourable proofs of their excellence is, that they have been eagerly embraced in all ages by those who had various gratifications at their command, and who were at full liberty to choose such as

vere

were most agreeable to their inclinations. Surely if we consider the state of independence they create, the variety of entertainment they afford, the length of time they may be pursued, the ease with which they may be procured, and the innocence with which they may be indulged, no pleasures can fairly be compared with these^a.

And still more happy is he who improves upon these pleasures by deriving *moral* benefit from his reading! Thus the passions are soothed, the temper is divested of petulance and asperity, the benevolent affections of the mind are improved, and rendered more ardent; and while he enjoys various resources in private study, he is gradually rendering himself more extensively estimable, as an entertaining companion, an agreeable friend, and an intelligent member of society.

“Studies serve for delight, for ornament, and for ability. Their chief use for delight is in privateness and retiring; for ornament is in discourse, and for ability is in the judgment and disposition of business. For expert men can execute and perhaps judge of particulars, one by one; but the general counsels and the plots and marshalling of affairs come best from those that are learned. Read not to contradict and confute, but to weigh and consider. Some Books are to be tasted, others to be swallowed, and some few to be digested; that is, some Books are to be read only in parts, others to be read, but not curiously; and some few to be read wholly and with diligence and attention. Reading

^a Nam cætera neque *Temporum omnium* sunt neque *Ætatum*, neque *Locorum*. Hæc studia adolescentiam alunt, senectutem oblectant, secundas res ornant, adversis perfugium ac solatium præbent, delectant domi, non impediunt foris, pernoctant nobiscum, peregrinantur, rusticantur.

Cicero pro Archia.

maketh

maketh a full man, conference a ready man, and writing an exact man. Histories make men wise, poets witty, the mathematic subtile, natural philosophy, deep, moral grave, logic and rhetoric able to contend."

Lord Bacon's Works, vol. iii. p. 372.

Principal Branches of Literature and Science,

INCLUDING

THE BEST EDITIONS OF THE CLASSICS.

Quint. lib. 10. *Quintilianus, qui sunt eminentissimi, et cetera in animo est. In-
cili et autem studio, qui sunt his studiis, judicant, ne qui-
quam paratur omnes fidei adque eorum, quae ipse talis probat.*

THE CHRISTIAN RELIGION, Vol. i. p. 17.

This list is intended only to give a young man a general knowledge of the subject, with a view to continue his religious principles. For a more copious information see the article Clerical Profession.

At English Bible with marginal references.—Hester's edition of the Book of Common Prayer, 8vo. The introduction is instructive and useful.—Clark's and Pyle's Paraphrases of the Gospel, 4to. of the Apostles, Epistles and Revelation, 4 vols. 8vo.—Dodd's Devotions, 8vo.—Secker's Lectures on the Church Catechism.—Gifford's—Summary of the principal Evidence of the Christian Religion by the Bishop of London, 12mo.—Brace's Evidence of the Christian Religion. This interesting work is recommended by Dr. Parr.—Lectures on the Truth of Christianity, and the Short and easy Method with the Deity.—Indifference for Religion carefully by Spence, 8vo.—Lancelot Mordaunt's Power of Religion on the Mind, 12mo.—Eight Sermons on the Power of Religion preached at Boyle's Lecture, by Dr. Beattie, 8vo. This valuable work is well calculated to give a proper direction to a young man's mind in religious inquiry, and to guard him against the errors which are particularly liable to those who have a taste for

LISTS

[480]

LISTS
 OF THE
MOST APPROVED AUTHORS,
 IN THE
Principal Branches of Literature and Science,
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Quosdam, qui sunt eminentissimi, excerpere in animo est. Facile est autem studiosis, qui sint his simillimi, judicare: ne quisquam queratur omissos forte aliquos eorum, quos ipse valde probet.
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THE

THE ENGLISH LANGUAGE, Vol. i. p. 102, &c.

Murray's English Grammar. This is the most complete Grammar of our Language. My opinion is confirmed by that of the public, as this work now appears in the 14th Edition.—*Irving's Elements of English Composition*, 12mo.—*Enfield's Speaker*, 12mo.—*Crombie's Etymology and Syntax of the English Language*, 8vo.—*Elements of Orthoepey*, by Nares, 8vo.—*Bailey's Etymological Dictionary*, by Scott, fol.—*Johnson's English Dictionary*, 2 vols. 4to.

ENGLISH CLASSICS, &c. Vol. i. p. 102, &c.

Elegant Extracts in Prose, 2 vols. 8vo.—*Elegant Epistles*, 8vo.—*Fitzosborne's Letters*, 8vo.—*Dryden's Prose Works*, by Malone, 4 vols. 8vo.—*The Spectator*, *Tatler*, *Guardian*, *Advertiser*, *Rambler*, *Idler*, *Connoisseur*, *Mirror*, *Observer*, and *Looker-on*.—The miscellaneous works of Lord Bacon, Locke, Temple, Swift, Addison, Johnson, Burke, Jenyns, Aikin, &c. &c.—*The Adventures of Robinson Crusoe*, *Clarissa Harlowe*, *Sir C. Grandison*, *Tom Jones*, *the Vicar of Wakefield*, *the Castle of Otranto*, and the novels and romances of *Madame D'Arblay*, *Mrs. Radcliffe*, *Mrs. Smith*, and *Mrs. Opie* may be mentioned as the best specimens of such compositions.

THE LATIN LANGUAGE, Vol. i. p. 138, &c.

CLASS I.

Dr. Valpy's Grammar is the shortest and the easiest.—*Delectus Sententiarum*, and *Latin Dialogues*, by the same judicious and learned instructor of youth—*Selecta e profanis Scriptoribus*, *Scriptores Romani*, and many other Eton school books are excellent, but it is to be regretted that many of them are incorrectly printed.—*Clarke's Introduction*, *Ainsworth's Dictionary*, and *Gradus ad Parnassum*.—*Catholici Indices a Labbe*, printed with *Kuster de vero usu verborum mediorum*.

CLASS II.

For those, who wish to gain more extensive information.

Sanctii Minerva, seu de Causis Linguae Latinae Commentarius a Bauer. 1793.—*Gesneri novus Linguae Romanae Thesaurus*.

rus, 4 tom. fol. This is an improved edition of Stephens's Thesaurus.—Totius Latinitatis Lexicon, Facciolati cura Forcellini, 4 tom. in 2.—Noltenii Lexicon Latinæ Linguæ Antibarbarum, cura Wichmanni, 2 tom. 8vo.—Schelleri Precepta Styli bene Latini, 2 tom. 8vo.—Fabricii Bibliotheca Latina, Ernesti, 3 tom. 8vo.—Thesaurus Ellipsium Latinarum, &c. a Palaiet.—Nizolii Thesaurus Ciceronianus, 2 tom. fol.—Glossarium ad Scriptores mediæ et infimæ Latinitatis per Du Fresne et Carpentier, 10 vol. fol.—Hill's Synonymes of the Latin Tongue, 4to.

He who desires to write Latin with elegance ought to study the excellent work of Heineccius, entitled Fundamenta Styli cultioris published by Niclas; Erasmus de Copia Verborum, reprinted in various forms; and Laurentius Valla de Linguæ Latinæ Elegancia, 12mo.

THE GREEK LANGUAGE, Vol. i. p. 166.

CLASS I.

The Eton Grammar.—Dr. Valpy's *Elements* of Greek Grammar, with notes for the use of those, who have made some progress in the language. The parts relating to Prosody and Dialects, are excellent.—*Parkhurst's Greek and English Lexicon to the New Testament*, 3d edit. 8vo. 1798.—*Hederici Lexicon Manuale*, a Taylor, 4to.—*Scapulæ Lexicon*, fol. Lugd. Bat. or as in some copies *Londini*, though the true place is printed at the end of the Index. The edition apud Elzevir, 1652, is the best, and the next is the edit. of Lugd. 1663.—Appendix ad Scapulam Lond. 1789, published from a manuscript in the Askew Collection, by Dr. C. Burney.—*An Analysis of the Greek Metres*, by J. B. Seale.—*An Introduction to writing Greek*, by Dr. Huntingford, now Bishop of Gloucester.

CLASS II.

Intended for those, who wish to gain more extensive information.

Grammatica Græca Welleri, cum notis Fischeri, 8vo.—Hermannus de Gram. Græc. emendand. ratione, Lips. 8vo.—An Essay on the different Nature of Accent and Quantity, &c. by J. Foster, 8vo. 2d edit.—Thesaurus Græcæ Poeseos, cui præfigitur de Poesi seu Prosodia Græcorum Tractatus, Auctore Morell, 4to. A new edition of this work, with the quantities of the syllables *accurately marked*, is a great desideratum.—Constantini Medici Cadomensis Dictionarium Linguæ Græcæ, cum Additionibus F. Porti aliorumque, Genev. 1592. The best edition

edition of this most useful work.—Suidæ Lexicon Græc. et Lat. Textum Græcum cum MSS. Codd. collatum et pluribus Mendis purgatum, et Versione Porti, Indiceque Kufteri locupletatum exhibens, 3 tom. fol. Cantab. 1705. A critical scholar ought to possess the three editions of Suidas, viz. the Aldine, the Milan, and the Cambridge, as they differ much from each other. The last is valuable for its notes. Kufter and other editors have taken the unwarrantable liberty of omitting several passages in Suidas.—Hefychius Alberti, 2 tom. fol. Every scholar ought to peruse the admirable collation of the only manuscript of this Lexicographer known to exist, by Schow. Lipf. 8vo. 1792.—Emendationes in Suidam et Hefychium, et alios Lexicographos Græcos. Scripsit J. Toup, Oxon. in 1790, 4 tom. 8vo.—Thesaurus Linguae Græcæ ab Henrico Stephano constructus, &c. 1572, 5 tom. in fol.—Appendix ad Thesaurum Linguae Græcæ, a Scott, 2 tom. fol. 1745.—Timæi Sophistæ Lexicon Vocum Platoniarum, Græce, cum notis Ruhkenii, 8vo. “Hic est unus in tota Literatura Græca Libellus simul et brevissimus et doctissimus.” Brunck apud Wyttenbach in Vita Ruhnken, p. 59.—Bos, Ellipses Græcæ, 8vo. Schwebelii.—Budæi Commentarii, fol.—Damm Lexicon Græcum Homericum et Pindaricum, 4to.—Apollonii Lexicon, 4to.—Introductio Grammatico-Critica in Linguam Græcam, qua de Linguae illius Origine, &c. differitur, edita a J. Simonis, 8vo.—Regulæ Accentuum et Spirituum Græcorum novo Ordine pro Captu Scholasticorum distributæ, &c. opera P. Labbe, 8vo.—Vigeri de præcipuis Græcæ Dictionis Idiotismis Libellus, illustravit, perpetuis Animadversionibus et quamplurimis Idiotismis auxit, H. Hoogeveen, 8vo. The learned Zeunius republished this book, and so has Herman.—Mæris Atticista Pierfoni, 8vo.—Phrynichus Pauwii, 4to.—Gregorius Corinthus de Dialectis Koenii, 8vo.—Ammonius a Valckenaer, 4to.—Doctrina Particularum, recensuit, brevavit, et auxit Schütz, 8vo.—Græcæ Linguae Dialecti in Scholæ Regiæ Ufum recognitæ, opera Maittaire.—Dawes Miscellanea Critica curavit et Appendicem addidit T. Burges. Oxon. 1781, 8vo.—*Fabricii Bibliotheca Græca*, five Notitia Scriptorum veterum Græcorum, &c. 14 tom. in 4to. An enlarged edition is now publishing by *Harles*. Nine volumes have appeared since 1790.

See the useful List of Books annexed to the *Collectanea Majora* of the learned Professor Dalzel, of Edinburgh.

ELOQUENCE, Vol. i. p. 187.

Initia Rhetorica, Auctore J. Ernesti, 12mo.—Ejusdem Lexicon Technologiæ Græcorum Rhet. 8vo.—Ejusdem Lexicon

Techn. Rhet. *Latinorum*, 8vo.—*Aristoteles* de Rhetorica, 8vo. Cant. 1728.—*Cicero* de Oratore, 8vo. Oxon. 1714. Edit. Proust.—To these may be added the elegant *Treatises de Inventionne*, de *Claris Oratoribus*, et liber qui dicitur *Brutus*.—*Quintiliani* Institutiones.—*Dionysius* Halicarnassensis *περί οὐρανοῦ καὶ ἀστρονομίας*, 8vo.—*Dialogues sur l'Eloquence*, par Fenelon, 12mo.—Campbell's *Philosophy of Rhetoric*, 2 vols. 8vo.—Blair's *Lectures*, 3 vol. 8vo.

HISTORY IN GENERAL, Vol. i. p. 216.

Lempriere's Classical Dictionary, 4to. and 8vo.—*Tytler's Elements of General History*, 2 vol. 8vo.—*Elemens d'Histoire Generale*, par Millot, 9 vol. 8vo. There is an English translation.—*Lectures on History*, by Priestley, 2 vol. 8vo.—*Nouveau Dictionnaire Historique*, 13 tom. 8vo. Lyon, 1804.—Du Fresnoy, *Methode pour Etudier l'Histoire* par Drouet, 15 vol. 12mo.—Rollin's *Ancient History*, 7 vol. 8vo. or 10 vol. 12mo.—Petavii *Rationarium Temporum*, 2 tom. 8vo. This is an abridgment of the *Doctrina Temporum* by this learned man, and is calculated to convey just ideas of general history.—Hoffmanni *Lexicon Universale*, 4 vol. fol.—Sir W. Raleigh's *History of the World*, fol. The last edition contains his life and trial, by Oldys.—The *Universal History* ancient and modern, 26 vol. fol. or 60 vol. 8vo. As a convenient substitute for this work, which is too voluminous and expensive for most private libraries, may be recommended the *Universal History* by Dr. Mavor, in 25 neat vols. 12mo.

GEOGRAPHY ANTIENT AND MODERN, Vol. i. p. 251, &c.

The best Globes are made by Adams.—*Goldsmith's Grammar of Geography*, which treats on the Use of the Globes, 12mo.—*Goldsmith's Geography* for young Persons, 8vo.—*Dionysii Geographia*, Gr. Lat. Wells, 8vo.—*Cellarii Geographia*, 2 vol. 4to. There is an improved edition by Patrick.—*Ptolemæi Geographia*, Gr. Lat. Bertie, fol.—*Ancient Geography* by Adam, 8vo.—*Rennel's Geography of Herodotus*, 4to.—*Rennel's Memoir of a Map of Hindoostan*, and of the Peninsula of India, with the maps, 4to.—*Vincent's Voyage of Nearchus*, and *Periplus of the Erythrean sea*, 4to.—*Danville's maps of ancient and modern Geography*, with his *Compendium of Antient Geography*, 2 vol. 12mo.—A new *System of Geography*, by Busching, 6 vol. 4to. There is a good edition of this useful work in French, by Berenger, 12 vols. 8vo.—*Martiniere, Dictionnaire Geographique*, 6 vol. fol.—*Pinkerton's modern*

modern Geography, 2 vol. 4to. The Preface is written by Professor Vince of Cambridge.—Chauchard's *General Map of Germany*, Holland, the Netherlands, Italy, Sicily, Switzerland, &c. in 27 sheets, with a descriptive volume in 4to. As a proof of the correctness of these popular maps, the Archduke Charles and Gen. Moreau referred to them to settle the territorial disputes between Austria and France in 1801.—Brooks's Gazetteer. A very useful alphabetical Compendium.—Crutwell's Universal Gazetteer, 3 vol. 8vo. with an Atlas in fol.—A general and classical Atlas, by the Rev. E. Pattefon, fol. An excellent work for young students, executed upon scientific principles.

CHRONOLOGY, Vol. i. p. 272.

Priestley's Charts of History and Biography, with the description.—Du Fresnoy's Work, in 2 vol. 8vo. It contains an excellent preface.—*L'Art de Verifier les Dates, des Faits Historiques, des Cartes, des Chroniques, et autres anciens monumens, depuis la Naissance de notre Seigneur*, 6 tom. fol. Paris, 1783. A very valuable work.—I agree with Mr. Collins in opinion, that the 25th volume of Dr. Mavor's Universal History, which is sold separately, contains a very full table of historical events.—Blair's Chronological Tables.—Bertin's do.—For English History, *Salmon's Chronological Historian* is very useful.—Naval Chronology, by Schomberg, 5 vol. 8vo. 1802. A work highly useful to Officers in the Navy.

THE HISTORY OF GREECE, Vol. i. p. 306.

Mitford's History of Greece, 6 vol. 8vo.—Wood's Essay on the Genius and Writings of Homer, 8vo.—*Travels of Anacharsis the younger, in Greece*, by the Abbé Barthelemy, 7 vol. 8vo.—Potter's Antiquities of Greece.—*Emmii Græcia illustrata*. An excellent work. 3 tom. It was reprinted in the Thesaurus of Grævius and Gronovius.—The History of Athens, by Sir W. Young, 8vo.

THE HISTORY OF ROME, Vol. i. p. 387.

Goldsmith's Roman History.—Kennet's *Roman Antiquities*, 8vo.—Adam's *Roman Antiquities*.—Hooke's *Roman History*, 11 vols. 8vo. Allowed to be better than Ferguson's *Roman Republic*, although the latter is written with elegance.—Vertot's *History of the Roman Revolutions*, 2 vol. 12mo.—Middleton's *Life of Cicero*, 2 vol. 8vo.—*Montesquieu sur la Grandeur des*

Romains et de leur Décadence, 12mo. This is an admirable work, replete with profound observations.—Rollin's Roman History, 10 vol. 8vo.—Crevier's History of the Roman Emperors, 10 vol. 8vo.—Histoire du Bas Empire, par le Beau, 24 vol. 12mo.

For the *original evidences* of Grecian and Roman History, see the *Lists of the Classics*.

MYTHOLOGY.

Tindal's Abridgment of Spence's Polymetis, 12mo.—*Spence's Polymetis*, fol.—Auctores Mythographi Latini, a Van Starveren, 4to.—Opuscula Mythologica, a Gale, Gr. Lat. 8vo.—Pantheon Ægyptiorum, a Jablonski, 8vo.—Banier's Mythology, 4 vol. 8vo.—Montfaucon, l'Antiquité expliquée et représentée en figures, 15 tom.—Bryant's Antient Mythology, 3 vol. 4to.

ANTIQUITIES OF GREECE AND ROME.

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ENGLISH ANTIQUITIES AND TOPOGRAPHY.

Horsley's *Britannia Romana, or Roman Antiquities in Britain*, fol. 1732.—*Camden's Britannia*, by Gough, 3 vol. fol. The indefatigable Editor has subjoined the description of Counties given by more recent Topographers.—*Essays on Gothic Architecture*, by T. Warton, &c. 8vo.—*Gough's Ancient Monuments*, 3 vol. large fol.—*Grose's Antiquities of England and Wales, Scotland and Ireland*, in 10 vol. 4to.—*Grose's Military Antiquities of Great Britain*, 2 vol. 4to.—*Tanner's Notitia Monastica*, fol.—*Dugdale's Monasticon Anglicanum*, 3 vol. fol.—*Stevens's Continuation of Dugdale*, 2 vol. fol.—*Willis's Survey of the Cathedrals*, 3 vols. 4to.—*Rowland's Mona Antiqua*, 4to.—*King's Munimenta Antiqua, or Observations on Ancient Castles*, 3 vol. fol.—*Strutt's Works on the Arms, &c. of the English*, 3 vol. 4to.—*Archæologia*; published by the Society of Antiquaries in 14 vols. 4to. London,

London, 1770—1805. The histories of many counties, and the engravings of several cathedrals, have been published, and it is much to be wished that their number should be completed.

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Introduction à l'Histoire moderne, générale et politique, de l'Univers, commencée par le Baron Pufendorf, augmentée par M. Bruzen de la Martiniere, 8 tom. 4to. à Paris, 1753. This is the best book of the kind extant. There is an edition in 12mo.—*Russel's History of modern Europe, with an Account of the Decline and Fall of the Roman Empire, &c. 5 vol. 8vo.*—*Robertson's History of Charles V. 4 vol. 8vo.*—*Ockley's History of the Saracens, 2 vol. 8vo.*—*Boernerus de doctis Hominibus Græcis Literarum Græcarum Instauratoribus, Lips. 1650.* A very curious book.—*Memoires sur l'ancienne Chevalerie, par M. de la Carne de St. Palaye, 3 tom. 12mo. à Paris, 1759.* The substance of this entertaining work is to be found in the *Memoires de l'Académie des Inscriptions, tom. 21.*—*L'Esprit des Croisades, ou l'Histoire des Guerres entreprises par les Chrétiens contre les Mahometans, 4 tom. 8vo.*—*Chevaliers de Malte, par Vertot, 4 tom. 4to.*—*History of the European Settlements in the West Indies, 2 vol. 8vo.* This excellent history is commonly attributed to Mr. Burke; but it is not printed in the collection of his works. I have heard, that it was written by his brother.—*Oeuvres posthumes de Frederic II. Roi de Prusse. 15 tom. 8vo. 1789.* There is an English translation.

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BIOGRAPHY, Vol. i. p. 224.

Hic manus ob patriam pugnando vulnera passi,
 Quique sacerdotes casti, dum vita manebat;
 Quique pii vates, et Phœbo digna locuti;
 Inventas aut qui vitam excoluere per artes,
 Quique sui memores alios fecere merendo.

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LOGIC, or the RIGHT USE of REASON, Vol. ii. p. 53.

Elementa Logicæ, subjicitur Appendix, &c. Napleton.—*Watts's Logic and Improvement of the Mind*, 3 vol. 8vo.—Aldrich

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MINERALOGY. Vol. ii. p. 207.

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CHEMISTRY. Vol. ii. p. 209.

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POLITE LITERATURE, AND ELEGANT ARTS.

Vol. ii. p. 244.

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tory of English Poetry, 3 vol. 4to.—An Enquiry into the Beauties of Painting, Poetry, and Music, by Webb, 8vo.—*Prælectiones Poeticæ* a Trapp, 2 vol. 12mo.—Lowth de *Sacra Poesi Hebræorum*, 8vo.—Beattie's Essays on Poetry, Music, &c. 8vo.—Aikin's Letters on Poetry, 8vo.—*Reflexions critiques sur la Poésie et la Peinture*, par l'Abbé Du Bos, 3 tom. 12mo. There is an English Translation by Nugent.—*Annales du Musée, & de l'Ecole Moderne de Beaux Arts, contenant la Collection complète des Peintures & Sculptures du Musée Napoleon à Paris*, 8vo. 1805. This elegant work gives a pleasing description of the inestimable treasures of the Arts now deposited in Paris.

PAINTING. Vol. ii. p. 278.

The Works of Richardson, recommended by Sir J. Reynolds, 4to. and 8vo.—*Walpole's Anecdotes of Painting in England*, 5 vol. 12mo.—A Treatise on Painting, by Leonardo da Vinci, translated by Rigaud, 8vo.—Cumberland's Catalogue of Pictures in the King of Spain's Palace in Madrid, 12mo. 1787.—*Discourses addressed to the Royal Academy*, by Sir J. Reynolds. A work equally remarkable for elegant language and refined taste.—Fresnoy's Art of Painting, translated into English Verse by Mason, with Annotations by Sir J. Reynolds, 4to.—*The Gentleman's and Connoisseur's Dictionary of Painters*, by Pilkington, improved by Fuseli, 4to. London, 1805.—An Essay upon Prints, containing remarks upon the Principles of Picturesque Beauty, 2d edit. 12mo.—Lectures on Painting by Henry Fuseli, 4to. 1801.

POETRY. Vol. ii. p. 288:

ENGLISH.

Elegant Extracts in Verse, 2 vol. large 8vo. To enumerate the various editions of our English Poets would be tedious and useless. Dr. Johnson's Collection, although not so copious as could be wished in our early Poets, is highly esteemed. The cheapest and most complete edition is that of Dr. Anderson, from Chaucer to Warton, with Lives, and the Translations of Greek and Latin Poets by Pope, &c. 13 vol. 8vo.—Percy's Reliques, 3 vol. 12mo.—Aikin's Collection of Songs, 8vo.—Headley's Beauties, 2 vol. 12mo. and Ellis's Specimens of early English Poets, 3 vol. 12mo.—Walter Scott's Border Minstrelsy, 2 vol. 8vo.—*Shakespeare's Works*, by Johnson and Stevens, 21 vol. 8vo. are published by I. Reed. This is the most complete edition that has yet appeared. The best of the smaller editions

editions of our inimitable bard, is in 10 vol. 12mo. *with Johnson's Preface and Glossarial Notes*, printed for Messrs. Rivingtons, &c. 1803.—Ben Jonson's Works, by Whalley, 7 vol. 8vo. 1756.—Massinger's Plays, 4 vol. 8vo. To which may be added the Dramatic Works of Otway, Lee, Rowe, Thomson, Lillo, Home, Mason, Garrick, Colman, Cumberland, Murphy, Sheridan, &c. &c.—Todd's Spenser, 8 vol. 8vo.—Todd's Milton, 6 vol. 8vo.—Beattie's Minstrel, Rogers's Pleasures of Memory, Campbell's Pleasures of Hope, Bowles's Poems, Heber's Palestine, Mrs. Opie's Poems, &c. &c.

FRENCH POETRY.

Bibliothèque Portative des Ecrivains François en vers, 2 tom. 8vo. chez Dulau, 1800.—Oeuvres de Boileau, 4 tom. 12mo.—Théâtre de P. Corneille, 6 tom. 12mo.—de T. Corneille, 5 tom. 12mo.—de Racine, 2 tom.—de Voltaire, 2 tom.—Henriade de Voltaire.—Oeuvres de Chaulieu, 8vo.—Fables de la Fontaine, chez Didot, 2 tom. 12mo.—L'Homme des Champs, ou les Georgiques Françaises, par de Lille, 12mo. 1800.

FRENCH PROSE.

Palairer's French Grammar.—Principes de la Langue Française par Wailly, 12mo. Useful for those who have made some progress in the language.—Nugent's Pocket Dictionary, English and French, 12mo.—Boyer's Dictionary, improved by Fierville, 2 vol. 4to.—Dictionnaire de l'Académie Française, 2 vol. 4to. 1802.—Synonymes Française par Girard, 2 tom. 12mo. A work which displays much clearness of judgment, and nice discrimination of words.—Lecteur François, 12mo. by Lindley Murray.—Bibliothèque Portative en Prose, 2 vol. 8vo.—Lycée, ou Cour de Littérature, Ancienne et Moderne, par La Harpe, 15 tom. 8vo. A very elegant and pleasing work.—In *Divinity*, the Works of Bourdaloue, Bossuet, Beaufobre, Massillon, Flechier, Saurin.—In *History*, those of Sully, Rollin, Basnage, Vertot, Condillac, Millot, and Henault.—In *Miscellaneous Literature*, those of La Bruyère, Montesquieu, Buffon, St. Pierre, Fontenelle, Fenelon, Le Sage, Thomas, Florian, Barthélemy, and Berquin, deserve the principal attention of the student. He will find that there is no species of composition in which the French excel so much as in the *Epistolary*; the Letters of Pascal, La Marquise de Lambert, Madame Sevigné, Madame Genlis, are therefore particularly recommended to him.

THE ITALIAN LANGUAGE.

Veneroni's Grammar.—Graglia's Italian and English Pocket Dictionary, 12mo.—Antonini, Dizionario Ital. Lat. et Francese, 2 tom. 4to.—Baretti's Phraseology, 8vo.—Dante, Opere tutte con Comento di Ventura sulla Commedia, 5 tom. 8vo.—Petrarca, edizione di Polidore, 2 tom. 12mo.—Ariosto, 4 tom.—Tasso, la Gierusalemme liberata, 2 tom. 12mo.—L'Aminta di Tasso.—Guarini, Il Pastor fido.—Tassoni, la Secchia rapita.—Opere di Metastasio, con figure da Bartolozzi, 12 tom. 8vo.

Parnaso Italiano, ovvero Raccolta de' Poeti Classici Italiani, 55 tom. 12mo. Venez. 1784. This copious Collection does honour to the genius and taste of the Italians.—Novelle Italiane, 26 tom. 8vo. For an account of the most eminent Italian Writers, see Baretti's Italian Library, 8vo.

THE SOURCES OF OUR NATIONAL PROSPERITY. Vol. ii. p. 298.

A Political Survey of Great Britain, by Campbell, 2 vol. 4to. This is a work of inestimable value to those who wish to understand the best means of promoting the prosperity of their native country.—*Smith's Enquiry into the Nature and Causes of the Wealth of Nations, 3 vol. 8vo. 1793.* This work, now in the highest estimation all over Europe, as a masterly System of political Economy, merits the attentive perusal of every Statesman. "The Author lived, not only to see the opposition it at first excited gradually subside, but to witness the practical influence of his writings on the commercial Policy of his Country." P. 83. See the Account of his Life and Writings, by D. Stewart.—Earl of Lauderdale on the Nature and Origin of Public Wealth, 8vo. 1804.—Sir J. Stewart's Principles of Political Economy, with his other Works, 6 vol. 8vo.

AGRICULTURE. Vol. ii. p. 298.

Lord Kames's Gentleman Farmer, 8vo.—Kent's Hints to Gentlemen of Landed Property, 8vo.—The New Farmer's Calendar, or Monthly Remembrancer for all Kinds of Country Business, 8vo. 1801.—Marshall's Rural Economy of the several Counties of England, 2 vol.—Remarks on Agriculture in the Southern Counties, 2 vol. 8vo.—Young's Farmer's Letters, 2 vol.—Rural Economy, 8vo.—Georgical Essays, by Dr. Hunter, 4 vol.

4 vol. 8vo. York. 1777.—Observations on Live Stock, containing Hints for choosing and improving the best Breeds of the most useful domestic Animals, by Culley, 8vo. 1786.—A complete System of Practical Agriculture, &c. by R. W. Dickson, 2 vol. 4to.—Designs for Cottages, by W. Gandy, 4to. 1805.—Abercrombie's Gardener's Dictionary, 3 vol. 8vo. See the List of Agricultural Books published by Harding, 36, St. James's-street, London.

COMMERCE. Vol. ii. p. 325.

An Essay on Trade, by Josiah Tucker, 8vo. 1753. This excellent Pamphlet, which displays a profound knowledge of the Subject, deserves to be more generally known, particularly to Merchants.—Mortimer's Elements of Commerce, 4to.—*Postlethwayte's Dictionary of Trade and Commerce*.—Sir J. Child's Discourse on Trade, Coin and Paper Credit, 1697.—Mun's England's Treasure by Foreign Trade, 12mo. 1713.—De Witt's True Interest and Political Maxims of the Republic of Holland and West Friesland, 8vo. 1702.—Davenant's Works, by Sir C. Whitworth, 5 vol. 8vo.—*Anderson's Origin and History of Commerce*, 4 vol. 4to.—Annals of Commerce, by Macpherson, 4 vol. 4to. A very complete work.

FOREIGN TRAVEL. Vol. ii. p. 374.

Profuit & varios mores, hominumque locorumque
Explorasse situs, multas terraque marique,
Aut vidisse ipsum urbes, aut narrantibus illas
Ex aliis novisse. —————

Vidæ Poet.

As the following List is calculated not only for those who intend to *visit* foreign countries, but for such persons as pursue this entertaining kind of reading merely for their *amusement*, I have made my selection as complete as I could. Much to the credit of the rational curiosity and adventurous spirit of Englishmen, it will be seen that they are diligent in their researches into every quarter of the globe, in a degree equal if not superior to the natives of other countries.

DIRECTIONS FOR TRAVELLERS.

Instructions for Travellers, by Dean Tucker, 4to.—*Hurd's Dialogues*, VII. and VIII. on the Uses of Foreign Travel.—*L'Utilité des Voyages, et l'Avantage que la Recherche des*

Antiquites procure aux Scavans, par Baudelot de Davival, 2 vol. 12mo. 1727.—*Itinéraire de l'Europe*, par Dutens, 8vo.

EUROPE IN GENERAL.

Hentzneri Itinerarium Germaniæ, Galliæ, Angliæ, et Italiæ, 8vo. Norim. 1629.—Travels through Germany, Bohemia, Hungary, Switzerland, &c. by J. G. Keyser, 8vo.—A Journey from London to Genoa, through England, Portugal, Spain, and France, by J. Baretti, 2 vol. 4to. or 4 vol. 8vo.—Letters of Mr. Gray, published in the edition of his Works, by Mason, 4 vol. 12mo.—Travels through Part of Europe, Asia Minor, the Islands of the Archipelago, &c. by Van Egmont, 2 vol. 8vo.—Nugent's Grand Tour, containing a Description of most of the Cities, Towns, &c. of Europe, 4 vol. 8vo.—Dr. Smith's Tour on the Continent in 1786, &c. 3 vol. 8vo.

GREAT BRITAIN, &c.

Pennant's Tours in England, Scotland, and Wales.—Johnson's Journey to the Western Isles, 8vo.—Mavor's British Tourist, in 6 vol. 12mo. is a very entertaining compilation.—Tour through the Isle of Man, by Robertson, 8vo. 1794.—Bingley's Tour through North Wales during the Summer of 1798, 2 vol. 8vo.—Warner's Walks through Wales, 1799, &c.—Cruttwell's Tour through the whole Island of Great Britain, divided into Journeys, 6 vol. 8vo. 1801.—The Guide to all the Watering and Sea-Bathing Places in England and Wales, for 1805, 12mo.—The Picture of London, for 1805, 12mo.

FRANCE.

Moore's View of Society in France, Switzerland, Germany, and Italy, 4 vol. 8vo.—Travels during 1787, 8, 9, in France, by A. Young, 4to.—Paris as it was and as it is, 2 vol. 8vo. 1804.—Forbes's Letters from France in 1803 and 1804, 2 vol. 8vo.

SPAIN AND PORTUGAL.

Travels in Spain, by De Bourgoane, 3 vol. 8vo. 1789.—Townsend's Journey through Spain, 3 vol. 8vo.—Swinburne's Travels through Spain, and Journey from Bayonne to Marseilles, 2 vol. 1787.—Costigan's Sketches of Society and Manners

Manners in Portugal in 1778 and 1779, 2 vol. 8vo.—Travels in Portugal, by Murphy, 4to. 1798.

GERMANY AND HUNGARY.

Nugent's Travels through Germany in 1766, 2 tom. 8vo.—Baron Caspar Reibbeck's Travels through Germany, by Maty, 3 vol. 8vo. 1787.—Stolberg's Travels, 2 vol. 4to. 1797.—Townson's Travels in Hungary, 4to. 1797.

ITALY AND SICILY.

Sentimental Letters on Italy, by Dupaty, 8vo.—Observations on Vesuvius, Etna, &c. by Sir W. Hamilton.—*Voyage en Italie, par de la Lande*, 7 tom. 12mo. This work is held in great repute.—Travels through various Provinces of the Kingdom of Naples in 1789, by C. Ulysses, translated by Aufrere, 8vo.—Relazioni de alcuni Viaggi fatti in diversi Parti della Toscana per osservare li Produzioni, naturali, et ogli antichi Monumenti di essa, par Tozetti in Firenze, 12 tom. 8vo. 1779.—Lady Miller's Letters from Italy, 3 vol. 8vo. 1776.—Martyn's Tour in Italy, 8vo. 1791.—Baretti's Account of Italy, 2 vol. 8vo.—Swinburne's Travels in the two Sicilies, 4 vol. 8vo.—Spallanzani's Travels in the same, 4 vol. 8vo.—Brydone's Tour through Sicily and Malta, 2 vol. 8vo.

SWITZERLAND.

Etat et Délices de la Suisse, par Fauche, 3 tom. 4to.—Coxe's Travels in Switzerland, 3 vol. 8vo.—Keate's Account of Geneva, 12mo.—Breife über die Schweiz per Meiner, 2 th. 8vo.—Breife eines Sachsen aus der Schweiz an seinen Freund in Leipzig, 3 vol. 8vo. 1785. This Work by Mr. Kuitner holds in the opinion of intelligent foreigners the second place among the excellent German productions relative to this charming Country.—Voyages dans les Alpes, précédés d'un Essai sur l'Histoire naturelle des Environs de Genève, par Saussure, 4to.—Description des Glacieres, Vallées de Glace, &c. 3 tom. 8vo. Genève. 1787.—Dictionnaire Geographique de la Suisse, 2 vol. 8vo.

RUSSIA, SWEDEN, &c.

View of the Russian Empire, by Tooke, 3 vol. 8vo.—Voyages et Découvertes faites par les Russes le long des Côtes de la Mer glaciale,

glaciale, et sur l'Océan, &c. par Muller, 2 tom. 8vo.—Hanway's Travels through Russia into Persia, 4 vol. 4to. 1753.—Wraxall's Curfory Remarks on the North of Europe, particularly Copenhagen, Stockholm, and Petersburgh, 8vo.—Voyages de Pallas en différentes Provinces de l'Empire de Russie, et dans l'Asie Septentrionale, par de la Peyronie, 5 tom. 4to. Paris, 1789, 93. There is an English Translation.—Coxe's Travels in Russia, Sweden, and Denmark, 5 vol. 8vo.—Letters from Scandinavia, 2 vol. 8vo. 1796.—Storck's Picture of Petersburg, 8vo. 1801.—Acerbi's Travels through Sweden, Finland, and Lapland, 2 tom. 4to. 1802.

TURKEY, &c.

Letters from Turkey, by Lady W. Montague, 12mo.—Memoirs of the Turkish Empire, by the Baron De Tott, 2 vol. 8vo.—Travels through the Bannat of Timiswar, Transylvania, and Hungary, by Baron J. Born, translated by R. E. Raspe, 8vo.—Fortis's Travels into Dalmatia, 4to. 1778.

GREECE.

Wheler's Journey into Greece, fol. 1682.—Chandler's Travels in Greece and Asia Minor, 2 vol. 4to. 1775.—Voyage pittoresque de la Grece, par Choiseul Gouffier.—Voyage littéraire de la Grece, par Guys, 4 tom. 8vo. 1783.—Voyage au Levant, Greece et Palestine, par Paul Lucas, 6 tom. 12mo.—Travels in Greece, by Xavier Scrofani, a Sicilian, performed in 1794 and 1795, translated from the Italian by Blanvillain, with a general Map of Ancient and Modern Greece, &c. 3 vol. 8vo. 1801.

INDIA.

Voyage de Bernier dans les Etats du Grand Mogul, 2 tom. 12mo. 1723.—Hodges's Travels in India, 4to. 1793.—The View of Hindoostan, by Pennant, 2 vol. 4to. 1798.—An Account of the Embassy to the Kingdom of Ava, by Col. Symes, 3 vol. 8vo. 1800. This is a very elegant and interesting Work, and introduces the Reader to an acquaintance with the manners and customs of a Nation much civilized, but hitherto almost unknown.—Turner's Account of an Embassy to Tibet, 4to. 1800.

CHINA.

CHINA.

General History of China, by Du Halde, 4 vol. 8vo. 1738.—The Chinese Traveller, containing the History of China, 2 vol. 8vo.—An authentic Account of an Embassy to China, by Sir J. Staunton, 2 vol. 4to.—The best Account of China is given by Barrow, in his Travels, in 4to. 1804.—Barrow's Travels to Cochin China, 4to. 1806.

AFRICA.

Shaw's Travels in Barbary and the Levant, 4to. 1757.—An Account of Travels into the Interior of Southern Africa, in the Years 1797 and 1798, by John Barrow, 4to.—Park's Travels in Africa, 8vo. 1800.—Thunberg's Travels in Africa and Asia, 4 vol. 8vo.—Vaillant's new Travels into the Interior of Africa, 5 vol. 8vo.—Ledyard's Travels, printed in the Proceedings of the African Association.—Kolben's Account of the Cape of Good Hope, 2 vol. 4to. See likewise the Accounts of Labat, Adanson, Winterbottom, Sparrman, and Bruce.

EGYPT, JERUSALEM, &c.

Maundrell's Journey from Aleppo to Jerusalem, 8vo.—Benjamin of Tudela's Travels in the Holy Land, &c. 8vo.—Norden's Travels in Egypt and Nubia, 2 vol. in 1, 1757.—Niebuhr's Travels in Arabia, 3 vol. 8vo. This is an Abridgment only of the original Work, published in 4 vol. 4to.—Voyage en Syrie et Egypte, par Volney, 2 tom. 8vo.—Journey from Bassora to Bagdat over the Desert to Aleppo, 8vo.—Travels in Egypt during the Campaigns of Bonaparte, by Denon, translated by Aikin, 3 vol. 8vo. 1805. See likewise the Accounts of Hasselquist, Reland, De la Roque, and Sonnini.

NORTH AMERICA.

Bartram's Travels through North and South Carolina, Georgia, &c. 8vo.—Weld's Travels through the States of North America, 2 vol. 8vo.—Chastellux's Travels in North America, 2 vol. 8vo.—Travels through the United States, the Country of the Iroquois and Upper Canada, &c. by the Duke de Liancourt, with an authentic Account of Lower Canada, 4 vol. 8vo. a new Edition.—Hearne's Journey to Hudson's Bay, 4to. 1795.—Mackenzie's Voyages from Montreal, 4to. 1801.

SOUTH

SOUTH AMERICA, &c.

Juan et De Ulloa, Voyage de l'Amerique Meridionale, 2 tom. 4to. 1752.—Voyage de Condamine, 8vo.—Frezier's Voyage along the Coasts of Chili and Peru, 4to. 1717.—Lindley's Voyage to Brasil, 8vo. 1805.—Labat, Voyage aux Isles de l'Amerique, 6 vol. 12mo.—General History of the West Indies, by Herrera, 6 vol. 8vo.—Edwards's History of the West Indies, 3 vol. 8vo.

SELECT VOYAGES.

Astley's Collection of Voyages and Travels, 4 vol. 4to.—Harris's complete Collection of Voyages and Travels, 2 vol. fol. 1744. See the character of this excellent and very entertaining Compilation in the Preface to the "European Settlements."—Anson's Voyage round the World, 4to. Lond. 1748.—Captain Cook's three Voyages round the World, with those of Byron, Wallis, and Carteret, by Hawkesworth, 9 vol. 4to. 1773, &c.—Bougainville's Voyage round the World, by Forster, 4to. 1772.—Dixon's Voyage round the World, 4to. 1789.—Vancouver's Voyage, 3 vol. 4to.—Perouse's Voyage round the World, 2 vol. 4to. 1799.—This list may be made more complete by the addition of Purchas's Pilgrims, 5 vol. fol.—Churchill's Collection, 6 vol.—The Harleian Voyages, frequently annexed to the preceding.—Hakluyt, 2 vol.—The Collection by Prevot, 27 vol. 4to. and the Voyages pittoresques de la Suisse, de Naples et Sicile, &c. 15 vol.—Atlas folio.

THE PROFESSION OF THE LAW.

Vol. ii. p. 408.

L'Esprit des Loix par Montesquieu, 2 vol. 8vo.—*Natural and Political Law*, by Burlamaqui, 2 vol. 8vo.—*Vattel's Law of Nations*, 8vo. The original is entitled *Droit de Gens*, 3 tom. 12mo. Paris, 1758.—*The Study and Practice of the Law, considered in their various Relations to Society, in a Series of Letters*, by a Member of Lincoln's Inn, 8vo. Lond. 1798.—Grotius on War and Peace, with Notes by Barbeyrac, fol.—Pufendorf's *Law of Nature and Nations*, fol.—Taylor's *Elements of the Civil Law*, 4to.—Domat's *Civil Law*, by Strahan, 2 vol. fol.—*Winne's Eunomus, or Dialogues concerning the Law and Constitution of England*, 4 vol. 8vo. 1785. This Work is highly recommended by Mr. Hargrave, in his edition of Coke upon Littleton, and by Mr. Reeves, in his *History of the English Law*,

Law, as a proper Book to be read previous to Blackstone's Commentaries. — *Blackstone's Commentaries, with Notes by Christian*, 4 vol. 8vo. 1800. "When you have read Blackstone once, read him again," was the advice of Lord Erskine to a young Student. — *Blackstone's Analysis of the Laws of England*, 8vo. — *Fortescue de Laudibus Legum Angliæ*, by Mulcaster. — *History of the English Law*, by Reeves, 4 vol. 8vo. — *Burn's Poor Laws*, 8vo. — *Burn's Ecclesiastical Law*, 4 vol. 8vo. — *Burn's Justice of the Peace*, 4 vol. 8vo. — *Bankrupt Laws*, by Coke, 2 vol. 8vo. — *Leeder on Controverted Elections*, 3 vol. — *The Practice of the Court of King's Bench*, by William Tidd, 2 vol. 8vo. Recommended to be read during the time of attending a special Pleader. — *Coke's Institutes*, by Hargrave and Butler, 7 vol. 8vo. including the Notes of Lord Chief Justice Hale, and Lord Chancellor Nottingham, 15th edit. 1795. — *A new Abridgment of the Law*, by M. Bacon, with considerable additions by Gwillim, 7 vol. 8vo. 5th edit. 1798. — *Hargrave's Law Tracts*. 4to. — *History and Antiquities of the Inns of Court and Chancery*, 8vo. — *Crown Circuit Companion*, by Dogherty, 8vo. — *A complete System of Pleading*, by Wentworth. — *Beccaria on Crimes and Punishments*, 8vo. — *The State Trials*, by Hargrave, 11 vol. fol. — *The Statutes at large*, by Ruffhead, 4to. — *Jacob's Law Dictionary*, 2 vol. 4to. Tomlins, 1797.

THE MEDICAL PROFESSION. Vol. ii. p. 416.

Gregory's Observations on the Duties and Offices of a Physician, 8vo. — *The Hospital Pupil, or an Essay on Medical and Chirurgical Education*, by J. Parkinson, 12mo. — *Cullen's first Lines, with Notes by Dr. Rotheram*, 4 vol. 8vo. 1796. — *Halleri Primæ Lineæ Physiologiæ*, 8vo. — *Institutiones Medicinæ Practicæ, quas Auditoribus suis prælegebat J. B. Burserius de Kanilfield*, 4 tom. 8vo. — *Translated by W. Cullen Brown*, in 5 vol. 8vo. — *Cornelius Celsus de Medicina*, 12mo. — *Harvæii Opera omnia*, 4to. *Medi Opera omnia*. — *Sydenhami Opera omnia*. — *Conspectus Medicinæ Theoreticæ*, a Gregory, 8vo. — *Principia Medicinæ*, a Home, 8vo. — *Lommii Observationes Medicinales*, 12mo. Amst. 1715. — *Cullen's Treatise on the Materia Medica*, 3 tom. 4to. — *Van Swieten's Commentaries upon Boerhaave*, by Cullen, 18 vol. 8vo. *Arbuthnot on Aliment*, 8vo. 1756. — *Cheyne's Essay on Health and Long Life*, 8vo. 1725. — *Woodville's Medical Botany*, containing Descriptions, with Plates, of all the Medicinal Plants, 4 vol. 4to. 1790. — *Tissot, Avis au Peuple sur la Santé*, 12mo. — *Blumenbach de Generis Humani Varietate Nativa*, 8vo. Gott. 1795. — *Medical Essays by the Edinburgh Society*, 6 vol.

6 vol. 12mo. 1771.—Murray Apparatus Medicaminum edit. ab Althof. 8 tom. 8vo.—Trilleri Dispensatorium Universale, 2 vol. 4to.—Boerhaave Methodus Studii Medici, a Haller, 2 tom. 4to.—Cornelius Celsus de Medecina cum notis Targæ cui accedit Lexicon Celsianum, 2 vol. 4to.—Macbride's Practice of Physic, 4to.—Cullen Synopsis Nosologiæ Methodicæ, 8vo.—Sauvage Nosologia Methodica, 5 vol. 8vo.—De Haen Ratio Medendi, 4 vol. 8vo.—London Medical Transactions, 3 vol. 8vo. To be continued by the College of Physicians.—Tissot avis au Peuple sur la Santé, 12mo.—Willich's Domestic Encyclopædia for the Use of Families, 4 vol. 8vo.

For ancient Medical Writers, see Harwood, p. 109.

The following, as I am informed, are the Books of Examination by the College of Physicians: Hippocratis Opera omnia, Vander Linden, 2 tom. 8vo. Lugd. Bat. 1665. Aretæi Opera omnia, fol. Oxon.

THE CLERICAL PROFESSION. Vol. ii. p. 426.

“Theological learning is the profession of the Clergy, and it may justly be said to every ignorant Minister of the Gospel—Thou which teachest another, teachest thou not thyself?” Bishop of Llandaff.

In drawing up the following Catalogue, I have derived much assistance from the Lists of the Bishops of Lincoln, Chester and Llandaff, and likewise from the hints of some learned and judicious friends. The Books of which the titles are printed in *Italics* will be found to conduce much to the elucidation of the respective subjects; and the whole Collection would form an excellent library for a Clergyman who wishes not merely to *commence*, but to *continue* the course of his professional studies.

I. PRACTICAL AND PASTORAL DUTIES.

A Serious call to a Devout and Holy Life, adapted to the State and Condition of all Orders of Christians, by William Law, 8vo. London, 1797. See the character of this excellent work by Gibbon. Memoirs of Lord Sheffield, vol. i. p. 15. “When at Oxford, (said Dr. Johnson) I took up Law's Serious Call, expecting to find it a dull book, and perhaps to laugh at it. But I found Law quite an overmatch for me, and this was the first occasion of my thinking seriously of Religion, after I became capable of rational inquiry.” Life by Boswell, vol. i. p. 43.—*Elements of Christian Theology, by the Bishop of Lincoln,* 2 vol,

2 vol. 8vo.—*Burnet's Pastoral Care*, 12mo.—*Wilson's Parochialia*.—Gisborne on the Duties of the Clerical Profession, 2 vol.—The Charges of Archbishop Secker, 8vo.—The Whole Duty of Man, 8vo. Part II. by Bishop Williams.—Bishop Gibson's Devotions.—Dodwell's Devotions.—*Erasmi Ecclesiastes, five Concionator Evangelicus*, 8vo. See the Note, vol. ii. p. 427, 8.—Claude's Essay on the Composition of a Sermon, with an Appendix containing one hundred Skeletons of Sermons, by Simeon. Cambridge. 8vo. 1796.—The Order for the Visitation of the Sick, interspersed with Prayers, &c. by Dr. Mant, 12mo.

II. PROOFS OF THE TRUTH OF CHRISTIANITY.

Stillingfleet's Origines Sacrae, 2 vol. 8vo.—*A View of the Evidences of Christianity*, by Dr. Paley, 2 vol. 8vo.—Jortin on the Christian Religion, 8vo.—Ostervald's Remarks on the Books of the Old and New Testament, abridged, 12mo.—Butler's Analogy, published by Bishop Halifax, with an original Sermon.—Coneybear's Defence of Natural and Revealed Religion, 8vo.—The Court of the Gentiles, or a Discourse touching the Original of Human Literature, by T. Gale, 2 vol. 4to.—A Dissertation on Miracles, containing an Examination of the Principles advanced by D. Hume, by G. Campbell, 12mo.—The Criterion, or Miracles examined with a view to explore the Pretensions of Pagans and Papists, &c. by J. Douglas, Bishop of Salisbury, 8vo. reprinted in 1806.—An Introduction to the Study of the Prophecies, 2 vol. 12mo. by Dr. Hurd, Bishop of Worcester.—History the Interpreter of Prophecy, &c. 2 vol. 5th edition.—Observations on divers Passages of Scripture collected by Mr. Harmer, 4 vol. 8vo.—Illustrations of the Truth of the Christian Religion, by E. Maltby, B. D. 8vo. Cambridge. 1803.

III. SERMONS.

A highly respectable friend, whose extensive acquaintance with the Works of the most eminent Divines fully qualifies him to form a judicious opinion upon the subject, has observed to me, in confirmation of my remarks, vol. ii. p. 433, that the perusal of Sermons is an useful branch of theological study, for the following reasons: "1. They shew the method of composing Sermons, the different kinds of style adapted to various occasions and congregations, and they supply excellent loci communes and materials to assist the Clergyman
in

in the work of “preaching the word.”—II. They set before him the full manner of treating a subject, exhibit all its parts principal and subordinate, its main and smaller branches, as may be well instanced in Barrow and Clarke.—III. They furnish a great store of theological knowledge at an easy rate, illustrate texts, open doctrines, and explain the Scriptures in their several applications, literal and figurative senses, &c.—IV. They keep constantly in view the *moral* design of the Gospel Revelation, as no subject is left without its inferences, and deductions chiefly practical; in short they are profitable “for doctrine, for reproof, for correction, for instruction in righteousness.” 2 Timothy, iii. 16.

A Defence of Natural and Revealed Religion, being an Abridgment of the Sermons preached at the Lecture of Robert Boyle, 4 vol. 8vo. There is an edition in 3 vol. fol. of the original Sermons, which is certainly preferable, and I believe cheap.—Abernethy on the Attributes, 2 vol. 8vo.—Doddridge on the Evidences of Christianity, in three Sermons, on the following Text: “We have not followed cunningly devised Fables, &c.” 2 Peter, i. 16.—The Sermons of South, Barrow, Tillotson, Clarke, Jortin, Seed, Ogden, Butler, Blackall, Atterbury, Warburton, Horbery, Powell, Tottie, Knight, Rogers, Conybeare, Sherlock, Secker, Wilson, Porteus, and Huntingford, compose a valuable Body of Divinity; and as they possess very great excellence in point of argument, illustration, method and language, ought to be carefully and repeatedly perused.—The Sermons of the most eminent Scotch and French Divines, and the *Bampton Lectures*, particularly those by Bandinel, White, Barrow, and Nares, deserve great attention. By reference to *Cook’s Preacher’s Assistant*, may be found explanations of the greatest part of the Holy Scriptures.—For Hebrew Bibles, see the article Hebrew Language.

IV. THE HOLY SCRIPTURES.

Vetus Testamentum Græcum, e Versione LXX. Interpretum, edidit J. E. Græbe, 2 tom. fol. or 8 tom. 8vo. published from the Alexandrian Manuscript in the British Museum. Oxon. 1707. There is a new and improved edition by Breitinger.—*Novum Testamentum Græcum Editionis receptæ, cum Lectionibus variantibus, &c. Opera et Studio Wetstenii, 2 tom. fol. Amstel. 1751-2.*

“ This

"This is the most elaborate edition of the Greek Testament ever published." The various Notes, Readings, References, &c. are computed by Michaelis to amount to a million. The Greek Text is incorrectly printed.—There are two editions of the beautiful *O mirificam* Greek Testament, by R. Stephens, one printed in 1546, the other in 1549; the latter is said to be the more uncommon of the two.—Nov. Test. Græc. 12mo.—Amst. apud Wetstein, 1735. Oxon. 1742.—Novum Testamentum Græcum, a Bengelio, 4to. Tubing. 1734, and in small 8vo. Lipf. 1790. Both are very useful editions.—Novum Testamentum Græcum, a Griesbach, 2 tom. 8vo. The second edition is very much esteemed.—Novum Lexicon Græco-Latinum in Nov. Test. congeffit J. F. Schleusner, 2 tom. Leipf. 1792.

V. WORKS OF COMMENTATORS, &c.

Gray's Key to the Old Testament, 8vo.—Percy's Key to the New Testament, 12mo.—Cruden's Concordance, 4to.—Collyer's Sacred Interpreter, 2 vol. 8vo.—Newcome's View of the English Biblical Translations, 8vo.—Dictionnaire de la Bible par Calmet, 4 tom. The old edition of the English Translation is the best.—New and full Method of settling the Canon of the New Testament, by Jones, 3 vol. 8vo.—Synopsis Criticorum aliorumque SS. Interpretum, Opera Mat. Poli, 5 tom. fol. "This Work is an abridgment of the *Critici Sacri*, enriched however with many additions. It certainly may be of great use to those who have not the command of many Books. It is highly esteemed abroad, and deserves to be much more valued in this Country." See Bishop Watson's Tracts, vol. vi. ad finem.—Millii et Waltoni Prolegomena, 4to.—Survey of the Bible, by S. Clarke, 4to. 1693.—Patrick and Lowth's Commentaries on the Old and New Testaments, 4 vol. fol.—Bishop Lowth on Isaiah, 4to.—Merrick's Translation of the Psalms.—Whitby on the New Testament, 2 vol. fol.—Taylor's Paraphrase of the Romans, 4to.—Locke on the Epistles.—Daubuz on the Revelation, fol. This last work is a rich mine of Theological learning.

VI. ECCLESIASTICAL HISTORY, &c.

Mosheim's Ecclesiastical History, 6 vol. 8vo. This is recommended because it is more complete than any other I am acquainted with. "It is in many points very exceptionable, and he as well as his Translator must be considered as adverse to the Church of England." See the Bishop of Chester's List of Books, and Bishop Warburton's Character of the Work quoted by the Translator.—Mosheim de Rebus Christianorum ante Constantinum, 4to. It is much to be regretted that this excellent

lent work has never been translated into English; as it would so well fill up the defective account of the three first Centuries in the Ecclesiastical History.—*Jortin's Remarks on Ecclesiastical History*, 3 vol. “Dr. Jortin has in a little compass taken notice of so many facts, and animadverted on them with so much judgment, that this work will be ever held in deserved repute: he has inserted also into it, the substance of his Discourses on the Nature, Use, and Intent of Prophecy and on Miracles, which were preached at Boyle's Lectures.” See the masterly Character of Dr. Jortin by Dr. Parr, p. 194. in his Dedication of the Tracts of Warburton, &c.—Wells's Geography of the Old and New Testament, 4 vol. 8vo.—*Historia Ecclesiastica Eusebii, Socratis, Theodoretii, Evagri, &c.* per Reading, 3 tom. fol.—Milner's Church History, 3 vol. 8vo.—Bingham's Antiquities, 2 vol. fol. and 10 vol. 8vo.—Prideaux's Connexion, 4 vol. 8vo.—Shuckford's Connexion, 4 vol. 8vo. *scarce*.—Cave's Lives of the Apostles and Fathers, 2 vol. fol.—Cave's Primitive Christianity, 3 parts, 8vo.—Burnet's History of the Reformation, 3 vol. fol. There is an abridgment in 1 vol. 8vo.—Lardner's Credibility, and Jewish and Heathen Testimonies, in his Works complete, 11 vol. 8vo.—Sketch of the Denominations of the Christian World, by J. Evans, 12mo. A Work written with candour and clearness.

VII. FATHERS OF THE CHURCH.

SELECT GREEK FATHERS.

Patres Apostolici, viz. Barnabas, Clemens Romanus, Hermas, Ignatius, Polycarpus, &c. per Cotelierum Editore Le Clerc, 2 tom. fol. 1724.—*Spicilegium Patrum* a Grabe, 2 tom. 12mo.—Justinus Martyr, Tatianus, Athenagoras, Theophilus et Hermias, Ed. Benedictin. fol. 1742.—Justinus Martyris *Apologiæ duæ & Dialogus cum Tryphone Judæo*, fol. a Thirlby.—Irenæus a Massuet, fol. 1710.—Theophilus ad Autolycom a Wolfio, 12mo.—Clementis Alexandrini Opera, 2 tom. fol. a Potter.—Origines, 4 vol. fol. Paris, 1733, &c.—Idem contra Celsum a Spencer, 4to.—Eusebii *Præparatio et Demonstratio Evangelica*, 2 tom. fol. Paris, 1628. See the excellent note on the *Demonstratio Evan.* a Vigero, in Harwood's Classics, p. 165. Ed. 4.—Chrysostomi Opera ex editione Benedict. a Montfaucon, 13 tom. fol. Paris, 1688.—Idem de Sacerdotio a Hughes, 8vo.—Basilii Opera Benedict. fol. Paris, 1721.—*Medulla Theologiæ Patrum Sculteti*. 4to.

SELECT

SELECT LATIN FATHERS.

Tertulliani Opera, fol. a Rigaltio Paris, 1675, a Semlero, 6 vol. 8vo.—Minucius Felix a Davifio, 8vo.—Cyprianus, fol. Edit. Benedict. Paris.—Hieronyni Opera, Benedict. 5 vol. fol. Paris, 1693, &c.—Augustini Opera, Benedict. 11 vol. fol. Paris, 1679, &c. For a particular recommendation of the Works of the Fathers, and an account of their Works, see the *Bampton Lectures* for 1790.

VII. BOOKS OF CONTROVERSY, &c.

Lettres de quelques Juifs Portugais et Allemands à Mr. De Voltaire, avec des Reflexions Critiques, &c. à Paris, 3 tom. 8vo. “These Letters contain an elegant answer to the various objections to revealed Religion, which Voltaire has borrowed from our English Deists. They were written by the Abbe Guenée. There is an English Translation.” Bishop Watson.—The ignorance, futility, and effrontery of Voltaire, with respect to Scriptural Subjects, are likewise very fully exposed in an excellent Work, in 2 vol. 12mo. by the great Haller.—A View of the principal Deistical Writers, by Leland, 2 vol. 4to.—Bentley’s Remarks on Free Thinking, under the title of Phileleutherus Lipsiensis.—Limborch de veritate Christianæ Rel. amica Collatio cum erudito Judæo.—Watson’s Apology for the Bible, 12mo. A good book with a bad title.

VIII. THE CHURCH OF ENGLAND.

Wheatley on the Common Prayer, 8vo.—Veneer’s Exposition on the same, 8vo.—Bisse’s Beauty of Holiness in the Common Prayer, 8vo.—Comber’s Primitive Use of Liturgies, 8vo.—Daubeny’s Guide to the Church, 8vo.—Bishop Burnet on the Articles.—Bishop Burnet’s Vindication of the Ordinations of the Church of England, 8vo.—Courayer’s Defence of English Ordinations, by Williams.—Rotherham’s Essay on Establishments, 8vo.—Nelson’s Festivals and Fasts, 8vo.—London Cases against the Dissenters, 3 vol. 8vo. by Bennet. This Work is abridged by the Author.—A Call for Union with the established Church, addressed to English Protestants, by Dr. Huntingford, Warden of Winchester, 8vo.

IX. HEBREW LANGUAGE, &c.

Buxtorf's Hebrew Grammar.—Buxtorf's Thesaurus Grammaticus and Lexicon.—Parkhurst's Hebrew and English Lexicon, 4to. 1792.—Baily's English and Hebrew Bible, 4 vol. 8vo.—Biblia Hebraica, cum Punctis et Variis Lectionibus, juxta Kennicot, Leipf. 4 tom. in 2.—Bib. Heb. cum Punctis et Notis illustrata a Vander Hooght, 2 vol. 8vo.—Bythneri Lyra Prophetica.—Leusdeni Clavis in Genesim. Clavis Pentateuchi a Robertson, 8vo.—Randolph on the Prophecies and other Texts in the New Testament, compared with the Original, 1782.—Biblia sacra Polyglotta, 6 vol. fol. edidit Waltonus, 1657. The Author, in the Prolegomena to this elaborate work, has discussed many points of Hebrew Philology with great acuteness and learning. See Dibdin's Classics, p. 1, for a particular account of this and other Polyglot Bibles.

“Tandem *Wolfii Bibliothecam Hebraicam* adire licet, quæ universos Literaturæ Hebraicæ thesauros pandit, libros cujuscunque generis præstantissimos indicat, aliaque omnia tradit, quæ ad perfectissimam totius Hebraismi cognitionem perducere possint.” Vide *Breve Consilium*, &c. a Bennet.

The following books form a good apparatus for those who wish to instruct themselves in this Language: Grammatica Hebræa, a Bennet, 2d edit. or Schroeder's Hebrew Gram.—Simonis Lexicon, by Eichorn, 2 tom. 8vo.—Hutter's Bible, fol. Cologn. 1602. The Serviles are printed in *hollow* letters, in the same manner as in the Grammar prefixed to Parkhurst's Lexicon.

ARABIC AND PERSIAN.

To persons who wish to qualify themselves for situations in the EAST INDIES, the following list will be found very useful. It was given to one of my friends by the learned Mr. *Langlès*, Professor of Oriental Languages, Member of the National Institute, and Keeper of the National Library at Paris. His high reputation in this branch of learning renders it particularly valuable.

Grammatica Turcico-Persico-Arabica, a Meninski, 4to. 1754.—Thesaurus Linguarum Orientalium ab eodem, 5 tom.—Erpenii Grammatica Arabica, a Schuitens.—Golii Lexicon Arabico-Latinum. fol.—Castelli Lexicon Heptaglotton, 2 tom. fol.—Alcorani Textus universalis ex editione Maraccii.—Lexicon linguæ Arabicæ in Coranum, et Vitam Timuri, 4to. 1784.—Monumenta vetustiorum Arabum Schultens, 4to.—Hirtii Anthologia Arabica, 8vo.—Wohls neue Arabische Anthologie,

thologie, Leipzig, 8vo. 1791.—Tylchen, *Elementale Arabicum*, 12mo.—Meidani *Proverbia Arabica* Schultens, 4to.—Jones's *Persian Grammar*.—Poesios *Asiaticæ Comment. lib. 6.* Auctore Jones ex editione Eichorn, 8vo.—*Specimen Poesios Persicæ*, 8vo.—*Anthologia Persica*, 4to. Viennæ. 1780.

The following Works will render this Catalogue more complete.—The *Persian, Arabic, and English Dictionary*, 2 vols. fol. by Richardson.—*Specimen Historiæ Arabum*—*Carmen Tograi*—*Eutychii Annales*—*Abulpharagii Historia Dynastiæ*—*Abi Gjaaphar Philosophus Autodidactus*—All these were published by the learned Dr. Pocock.—*Abulfedæ Vita Mahumedis a Gagniero*.—*Elmacini Historia Saracenica ab Erpenio*.—*Timuri Historia a Golio*.—*Abdollariphi Historiæ Ægypti Compendium*, a Professore White, 4to. Oxon. 1800.—*Lexicon Linguae Arab. in Coranum, Haririum, & Vitam Timuri* Auctore Willmet, 4to. This may be made a useful substitute for Golius's *Lexicon*.

GREEK AND LATIN CLASSICS, &c.

In the following List are pointed out rather the most useful, than the most splendid or costly editions. Such as will best answer the purpose of a Student are printed in *Italics*: the other editions mentioned deserve the attention of those who wish to make more particular researches into Classical Criticism, and Bibliography. The *Editiones Principes*, as the curious and valuable representatives of Manuscripts, are particularly noticed; but I have corrected some of the dates of Dr. Harwood, by the beautiful copies in the Bodleian Library. As Dr. H.'s work is now become scarce, I have endeavoured to supply its place, and to render my List more valuable, have noticed many recent editions. The quotations from the 4th Edition of Dr. H.'s *View of the Classics*, are distinguished by "inverted commas;" but I have not adopted any of his opinions, without the concurrence of those EMINENT SCHOLARS, both of *Oxford* and *Cambridge*, who have given me important assistance in this part of my Work. Mr. Dibdin's *Introduction to the Knowledge of rare and valuable Editions of the Classics*, has been consulted, and notices of several articles have been taken from his elaborate and useful publication.

GREEK CLASSICS.

HOMER. B. C. 850.

Ilias & Odyssæa & Batracho: Editio Princeps, fol. Florent. 1488. ——— *Ilias*, with the Greek Scholia, fol. Romæ.

1517. ——— Opera cum Comment. Eustathii Romæ apud Bladum, 1550. ——— Cum Notis Clarkii & Ernesti, Lips. 1759, 5 tom. 8vo. *the best edition*. It contains the Collation of a Leipzig Manuscript, and of all the earliest editions. If this edition cannot be procured, *the Oxford edition*, in 5 vol. 8vo. 1780, with the Hymns attributed to Homer, and the Index of Seberus, is to be recommended. It contains the Minor Scholia. ——— a Berglero, 2 tom. 12mo. Amst. 1707. A neat and convenient edition. ——— Hymnus in Cererem, edente Ruhnkenio, 2d edit. 8vo. "The diction of this hymn is very beautiful, but is more polished and elaborate than the phraseology of the Iliad and the Odyssey." ——— Ilias ad veteris Cod. Venet. fidem recensita. Scholia in eam antiquissima edidit J. B. C. Villoison Venet. fol. 1788. A most valuable treasure of critical learning is contained in these ancient Scholia. See Harles's Fabricius, tom. i. p. 422. — Homeri & Homeridarum Opera & reliquæ, recensuit F. A. Wolfius, 5 tom. 8vo. Halis Sax. 1794. Very great and judicious use has been made throughout this work of the Scholia, published by Villoison. In the Prolegomena, the external evidence relative to these most eminent Works of Classical Antiquity is fully examined, and a particular account is given of the ancient Critics, who have directed their attention to this subject. Wolfius states his reasons for supposing that the works commonly attributed to the great Mæonian Bard, were in part only composed by him; that the remainder were the productions of the *Homeridæ*, and other Poets, and that the whole were finally arranged and methodised in two Poems by Pisistratus and his Family. The genuine lover of antiquity will doubtless examine all the evidence with the greatest circumspection before he adopts the conclusions of this ingenious Editor. — The Grenville Homer, in 4 vol. 8vo. published at Oxford, affords a specimen of accurate typography. It contains the collation of a valuable ancient Manuscript of the Odyssey in the British Museum, by Professor Porson. — Ilias a Heyne, 8 tom. 8vo. Lips. 1802. Scholars complain of the inaccuracies of this elaborate edition, as well in the representation of the various readings of the MSS. as in other respects.

HESIOD. B. C. 870.

Opera et Dies, et Theocriti Idyllia, Gr. 4to. absque ulla nota, but supposed to have been printed Mediolani, 1493. Editio Princeps — Gr. fol. apud Aldum cum Theocrito, 1495. There are two impressions of Theocritus, with Hesiod, &c. with the same date, 1495. The more correct is that in which the Poem of the *Syrinx* is inclosed in a frame nearly in the shape

shape of a common jar. De Bure justly describes these as some of the most elegant specimens of the Aldine Press.—
 ——— apud Trincavellum, 4to. 1537. Venet. E. P. * of the Scholia.——— Cum Græcis Scholiis & notis Heinſii, 4to. Lugd. Bat. 1603. “A very correct edition.”——— *Loefneri Lips.* 8vo. 1778. The best edition. “It contains the valuable Notes of former Editors, some inedited Scholia, new various Readings, and Ruhnkenius’s Observations.”

ÆSOP. B. C. 580.

4to. Mediol. with the Latin version of Rinutius. E. P. liber rarissimus.—a Heufinger, 8vo. Lips. 1741, 56, 70, 75. All excellent editions.

PINDAR. B. C. 435.

Carmina, Callimachi Hymni, Dionysius de situ Orbis, & Lycophronis Alexandra Græc. 8vo. Venet. apud Aldum, 1513. E. P. The first edition of the Scholia was published at Rome, 1515.——— Gr. and Lat. Benedict, 4to. Salmur. 1620. “An excellent edition for explaining difficulties, and for historical and mythological information.”——— *Heynii cum Scholiis Græcis, & Metrica Commentatione, G. Hermannii, & Fragmentis*, 3 tom. 8vo. Gotting. 1799. “After an edition so full, correct and profoundly learned, as this second one of Professor Heyne, the public, perhaps, cannot expect much further elucidation of the sublime strains of Pindar.” Dibdin, p. 292.

ANACREON. B. C. 474.

— ab Hen. Stephano, 1554. E. P. ——— a Barnes, 8vo. Cantab. Of three editions by Barnes, that published in 1721 is the best.——— “a Spaletti ex Codice Vaticano, 1781, fol. imperial. cum figuris. Ordo diversus ab editis, lectio discrepat a vulgata. Iterum prodiit Romæ, 1783.” Harles.——— a Deger, 12mo. Erlangæ. 1786.——— & Sappho, a Born, cum notis perpetuis, 12mo. Lipsiæ, 1789.——— *Fischeri Lips.* 8vo. 1793. An excellent edition.——— Brunckii, cum notis, forma minima. Argent. 1796. An elegant little Book.

* E. P. stands for *Editio Princeps*.

ÆSCHYLUS. B. C. 456.

Sex Tragediæ apud Ald. 1518. E. P.—Turnebi, 12mo. Paris 1552. Only six Tragedies similar to the Aldine edition.—Robertelli, 8vo. 1552. E. P. of the Tragedies complete and of the Scholia. The first edition which represents the Tragedies exactly as we now have them, is that by H. Stephens, beautifully printed at Paris, in 4to. 1557. with the Scholia, and the Notes of P. Victorius at the end.—Canteri, Antwerpi, 12mo. 1580. An elegant and correct edition.—Gr. & Lat. Stanlei, fol. Lond. 1663. The character of this scarcest of the English folio Classics stands deservedly very high. De Bure, Morhof, Fabricius, Harles, and all writers upon the subject of Bibliography, speak of it in the most advantageous terms.—Pauwii Hag. Com. 4to. 2 tom. Gr. et Lat. 1745. This edition contains the whole of Stanley's Notes, with his own emendations, and the various readings of Stephens and Turnebus. Pauw's Notes are of little value; Brunck says that P. has copied all the typographical errors of Stanley.—Schützii Halæ 3 tom. 8vo. 1792-97. The various readings are in many places inaccurately stated, but the Notes and disquisition are very useful in explaining the difficulties of this obscure author.—Glasgow fol. 1795. By Professor Porson, but without name, notes, or Scholia.—Schütz has reprinted his Æschylus, in 2 vol. 8vo. Halæ, 1800, with a Latin translation, and a collation of the Texts of Stanley and Porson.—The Edition by F. H. Bothe, 8vo. Lipf. 1805, is here only noticed to be censured, as the text is altered without judgment or authority.

SOPHOCLES. B. C. 406.

Gr. 8vo. apud Ald. 1502. E. P.—Florent. apud Juntas, 4to. 1522.—apud Juntas, 4to. 1547.—Scholia in Sophoclem, Romæ, 1518. E. P. Turnebi, Paris, 4to. 1553. These editions of the Plays and Scholia are all necessary to a critical scholar, as they have never been accurately collated, and as the variations in them are numerous and important.—*Brunckii Argent.* 2 tom. 4to. 4 tom. 8vo. 1786, and 3 tom. 8vo. 1788. The last edition is printed upon better paper, and is much more correct than the others. The Scholia of Triclinus are omitted, and some notes are added. It is to be observed that every succeeding edition of a Classic published by this diligent scholar varies from the preceding.—Correctore Harwoodio, & Morellio indicem amplissimum conficiente Etonæ, 4to. 1786.—Mufgravii, Oxon. 2 tom. 8vo.

8vo. 1800. The Text is a repetition of Johnson's Sophocles, although altered in some places as the sense required. The various readings placed at the bottom of the page increase its value: but it would have been much better, if the *last* edition of *Brunck* had been collated. It has the advantage of a good Index of the passages in Sophocles cited by Suidas.

EURIPIDES. B. C. 406.

Euripidis Medea, Hippolytus, Alcestis, Andromache apud Lascar. Literis capital. Floren. 1496. — Gr. 8vo. apud Aldum. 1503. E. P. Aldus mentions only seventeen Plays in his title page, but has printed eighteen. The first edition of the nineteenth Play, viz. the *Electra*, was published at Rome, 1534. The first edition of the Scholia came from the press of Junta, 1534.—Apud P. Stephanum, cum Scholiis, versione Canteri, ejusdemque & Brodæi, Stiblini atque Æm. Porti annotationibus, 2 tom. 4to. Genev. 1602.—Barnesii. Cantab. fol. Gr. et Lat. cum Scholiis, 1694. This is an edition of great excellence, and deserved celebrity.—*Beckii cum Notis integris Barnesii, Musgravii aliorumque selectis.* Subjicitur index verborum utilissimus, 3 tom. 4to. Lips. 1778. An excellent account of the MSS. and editions of Euripides, is prefixed to the third Volume. “Editio omnium quæ adhuc lucem viderunt longe utilissima.” Professor Dalzel.

SELECT PLAYS OF THE TRAGIC POETS.

Brunckii Theatrum Græcum, continens *Æschyli* Prometheus vincitum, Septem adversus Thebas, Persas; *Sophoclis* Electram, Antigonem, Oedipum Tyrannum; *Euripidis* Medeam, Hecubam, Orestem, Phœnissas, Hippolytum, Andromachen, & Bacchas, Argent. 1779.—Euripidis Phœnissa ab Hugone Grotio. Paris. 1630.—Hecuba, Orestes, & Phœnissæ, a King, 2 vol. Gr. & Lat. Cant. 1726. Reprinted, with the Alcestis, and the Scholia, and Notes of Morell, Lond. 1748.—Phœnissæ, a Valckenaer, 4to. 1755. It was reprinted, Lugd. Bat. 1802, and the Notes are injudiciously placed at the end of the Plays, instead of under the Text, as Valckenaer himself has done.—Hippolytus ab eodem cum Diatribe in Euripidis perditorum Dramatum reliquias, 4to. 1767. The Diatribe is a choice piece of criticism, and contains some happy corrections of the text of the fragments. It is an excellent work for those who wish to be acquainted with the philosophical opinions of Euripides, and with the peculiar character of his style, as distinguished from that of Sophocles.—Pentalogia

Burtoni, 8vo. 1758. The preface written in classical Latin contains an excellent Critique on the Greek Drama compared with the theatrical productions of modern times. Reprinted with additional Notes by Burgefs, 2 tom. 8vo. 1779. The Work was reprinted at the Clarendon Press, 1801, from Dr. Burton's original Edition.—Euripidis Supplices a Markland. Dr. Harwood's List includes both the 4to. and the 8vo. Editions. "They contain a grammatical Treatise de Græcorum Declinatione imparisyllabica, & inde formata Latinorum tertia; and likewise Observations on various Greek and Latin Authors." The 4to. edition has "explicationes veterum aliquot Græcorum et Latinorum;" some of which are good. These should have been reprinted with the 8vo. edition.—Euripidis Iphigenia in Aulide & Tauris, a Markland, Lond. 8vo. 1771.——Iphigenia in Aulide. 8vo. Höpfner Halæ. 1795. It contains a very full preliminary dissertation, and ample notes, with an Index.—Euripidis Hecuba, Orestes, Phœnissæ, & Medea, published separately by Professor Porson, Lond. 1797, &c.—Hecuba, cum nova præfatione & notis auctioribus Cantab. 1802. To commend these excellent specimens of critical acumen would be superfluous: we cannot fail to unite with the public in the most cordial wishes, that the learned Professor may have health and leisure to complete his design.

CEBES. B. C. 405.

Cebetis Tabula Gronovii, 8vo. a good edition.—Glasgow, 12mo. 1747. "Beautiful and accurate."

ARISTOPHANES. B. C. 389.

——— Comædiæ novem cum Scholiis, fol. apud Ald. 1498. E. P. It contains much better readings than the more modern Editions both in the Text and the Scholia.——— apud Juntas, 8vo. 1515. E. P. of the Thesm. and Lysistratæ. This is an edition of manuscript authority. Brunck derived much assistance from it, and frequently without acknowledgement.—Comædiæ novem apud Juntam cum Scholiis, 4to. 1525. This edition is curious and valuable.——— a Kustero, fol. Amst. 1710. This edition is particularly valuable for containing a collection of *variorum* notes and the Scholia. The Scholia in Aristophanem are esteemed the most valuable of any written upon the Greek Classics.——— Bergleri, 2 tom. 4to. 1760. This edition contains a good deal of information necessary to illustrate the continual allusions of Aristophanes to the history of his own times and country.——— Brunckii, 4 tom.

4 tom. 8vo. Argent. 1783.—Invernizii, 2 tom. 8vo. This edition is only valuable for being printed from the excellent Ravenna MS. never before collated.

SELECT PLAYS OF ARISTOPHANES.

Plutus cum Notis & Scholiis Hemsterhuisii, 8vo. Harling. 1744. "One of the most accurate editions of a Greek author ever published." Ludibrium (monebo) eruditis omnibus eum debere, qui criticam facere velit, & Hemsterhuisii Plutum ne quidem noverit." Brunck in Aristoph. Plutum, p. 327. This praise comes from a respectable quarter, but it is too high and unqualified, as H. was little acquainted with Greek metre.—Equites Gr. 4to. Oxon. apud Barnes, 1593.—Aves Beckii, 8vo. 1782.—Nubes, 8vo. Harles, 1788.

MENANDER AND PHILEMON, B. C. 290.

Menandri & Philemonis Reliquiæ Græc. & Lat. cum Notis Grotii & Clerici Amst. 1709, vol. ii. Emendationes in eorundem Reliquias Auctore Phileleuthero Lipsiensi (the celebrated Dr. Bentley) Traject. ad Rhenum, 1710. vol. iii. Philargyrii Cantab. (John Cornelius de Pauw the Editor of Æschylus, &c.) Emendationes in reliquias Amst. 1711. vol. iv. small 12mo. Infamia Emendationum Lugd.-Bat. 1710. by James Gronovius, under a feigned name; see Harles. An Account of the Correspondence between Le Clerc and Dr. Bentley, upon the subject of these fragments may be found in Maty's Review for April 1786.—The Emendationes were published at Cambridge, with Dr. Bentley's Letter to Dr. Mill, in 1714.

HERODOTUS. B. C. 484.

Græc. fol. apud Aldum, 1502. E. P.—a Foulis Glasguae, Gr. & Lat. 9 vol. 12mo. 1761. A neat and convenient edition.—A Wesseling. Gr. & Lat. fol. Amst. 1763. This edition contains the notes of Gale, Gronovius, and Wesseling, as well as the historical and critical annotations of Valckenaer. It well deserves the high praise which all scholars, particularly Harles, Wyttenbach, and Dalzel have given to it, as it is one of the most complete publications of a classic that ever appeared in the learned world.—A Borheck, 2 tom. 8vo. Lemgoviae, 1781. The Editor has since published 3 volumes of *Excursus*, which contain much valuable information taken from the notes of Wesseling, and Larcher. No work is a greater desideratum as
a Lecture

a Lecture Book for our Universities and Schools, than a commodious and cheap edition of Herodotus, with select notes.

THUCYDIDES. B. C. 391.

Fol. apud Ald. Venet. 1502. E. P. This text is highly esteemed.—Duker and Wasse, Græc. & Lat. 2 vol. fol. Amst. 1731. An excellent but very expensive edition. A proper companion to Wesseling's Herodotus.—*Thucydides ad editionem Wasse et Dukeri accurate expressus*, 6 tom. 8vo. Bipont. 1788, with a Notitia Literaria from Fabricius, and without the Annals of Thucydides by Dodwell. The size of this edition is commodious, and the type is beautiful, but the variæ Lectiones, Annotationes in Libros, Annotationes in Scholia, &c. are disposed in an inconvenient manner.—Thucydidis Orationes edidit Bauer, 8vo. Lips. 1759. A judicious and useful selection.

XENOPHON. B. C. 360.

Gr. fol. Florent. apud Juntas, 1516. E. P. This is not held by de Bure in such high esteem as the Aldine of 1525. "The Greek edition published by the famous Castalio when he was Greek Professor at Basil is very correct and excellent," 1540.—Leunclavii, fol. Paris, 1625. The following is the best collection of the works of Xenophon: Cyri Disciplina, a Schneider, Lips. 8vo. 1800. Œconomicus, &c. a Zeunio & Bachio, Lips. 1782. Opuscula politica, a Zeunio, Lips. 1778. Anabasis, ab eodem, 1785. Memorabilia, a Schneider, Lips. 1790. Historia Græca, ab eodem, 1791. For farther information consult the respective prefaces, especially that to Schneider's edition of the Memorabilia.

It is much to be regretted that my inestimable friend, the Rev. William Benwell, Fellow of Trinity College, Oxford, who was eminent for his learning and taste, did not live to complete the publication of the Memorabilia.

—"Non totus raptus licet, optime nobis
Eriperis,—redit os placidum, morefque benigni,
Et venit ante oculos, & pectore vivit imago*."

He had printed the work in a handsome form as far as the 6th Chapter of the 3d Book, with his new version, notes, and various readings. Since the above account was written, it has been published in 2 vol. 8vo. with the remaining part of the notes and various readings from Schneider's edition.

I do not forget the *Cyropœdia* and the *Expeditio Cyri*, by Hutchinson, Oxon. 1727 and 1735. They are very handsomely printed, but how little they are entitled to the lofty praise of Dr. Harwood will appear by considering that Hutchinson had recourse only to *one* manuscript for his collations, and that not a very good one. And so neglectful was he of the old editions, that he appears to have paid no attention to the *Editio Princeps*. Hutchinson's *Anabasis* was republished at Cambridge in 1775. Prof. Porson and Mr. Whiter added some useful notes and corrections, which were printed in a form accommodated to the Edition. See *Addenda in Cyri Anabasin*. Cantab. 1786.

POLYBIUS. B. C. 124.

Græc. fol. Haganoæ, 1530.—*Liber sextus* Græc. 4to. Paris, 1539. E. P.—Ernesti, 3 tom. 8vo. Lips. 1764. It contains a more complete Index than the edition by Gronovius.—*Schweighæuser*, 9 tom. 8vo. Lips. 1789, &c. This costly and elaborate work contains a complete apparatus to the History of Polybius. The three last volumes are filled with notes, a geographical, and historical Index, the Preface of Casaubon, and a very copious Lexicon Polybianum. This Preface of Casaubon is said by Dr. Joseph Warton to be one of the finest ever written. See Dibdin, p. 327.

DIODORUS SICULUS. B. C. 44.

4to. Basil. 1539. E. P.—*Wesselingii*, 2 tom. fol. Amst. 1746.—A new and beautiful edition in 8vo. is publishing at Deux Ponts, cum Comment. C. G. Heynii & cum Argumentis N. Eyringii. Ten volumes 8vo. have already appeared. There are some additional dissertations by the learned Editors, who profess to have corrected many material errors by Wesseling. Two volumes of another edition have been published at Hall, by Eichstadt, who is reputed in Germany a scholar of great eminence.

DIONYSIUS HALICARNASSENSIS. B. C. 5.

Fol. R. Stephan. Paris. 1546. E. P. "One of the most beautiful books the Greek press ever produced."—*Hudson*, fol. Gr. & Lat. 2 vol. fol. 1704. "A correct, superb, and immortal work." Dibdin. It will preserve the high estimation of the learned, notwithstanding the unfounded charges brought against it by Reiske, for typographical errors. See Dibdin, p. 128, for Count Revickzy's vindication of Hudson against Reiske.—
Cum

Cum notis variorum & Reiske, 6 vol. 8vo. Lipsiæ, 1774.—
De Structura Orationis, *ab Upton*. Lond. 1728. A useful selection from the Roman antiquities of Dionysius was published not long ago at Leipzig, by Grimm.

DIONYSIUS THE GEOGRAPHER. B. C. 2.

Gr. & Lat. cum Scholiis, *ab H. Stephano*. 4to. 1577.
“The most correct and complete edition of this Geographer.”
—Gr. & Lat. 8vo. Hill. 1688. “A valuable edition.”

STRABO. After Christ, 25.

Gr. fol. apud Ald. 1516. E. P.—Gr. & Lat. fol. *Casaubon*, Paris, 1620. “The correctness of this edition and the notes it contains, do great credit to the very learned and ingenious *Casaubon*.”—Reprinted handsomely at Amsterdam by *Almeloveen* in 2 vol. fol. with the intire notes of *Casaubon* & variorum. 1707. A commodious and excellent octavo edition was begun in Germany by *Siebenkees*, who died when he had finished the second volume: it is now continued by *Tschuzche*, an able scholar, who has published a 3d volume.

PLUTARCH. A. C. 120.

Vitæ Gr. fol. Florent. apud Juntas, 1517. E. P.—Ethica Gr. fol. Venet. apud Ald. 1509. The first edition of *Plutarch's* Morals.—*Plutarchi Opera omnia*, Gr. *ab H. Stephano*, 13 vol. 8vo. Gr. & Lat. 1572.—Opera, a *Xylandro*, Franc. 2 vol. fol. Græc. and Lat. 1620, & *Rualdi*, Paris, 1624. These editions are commonly referred to by the Critics, as they correspond page for page. *Rualdus* has given a life of *Plutarch*, with remarks on many corrupt passages.

DISTINCT TREATISES OF PLUTARCH.

Opuscula Græca ex emendatione *Ducæ*, fol. Venet. apud Aldum, 1509.—Vitæ Parall. Græc. fol. Florent.—Vitæ *Ciceronis* & *Demosthenes* Parall. a *Barton*, 8vo. Oxon. 1744.—De *Iside* & *Osiride*, Græc. & Ang. a *Squire*, 8vo.—De audiendis Poetis, Gr. & Lat. 8vo. *Potter*, Oxon. 1693, & a *Krebsio*, Lipf. 1748.—De fera *Numinis* Vindicta, 8vo. a *Wyttenbach*, 1772. “This is one of the best edited little books I know.” Something ought to be deducted from this praise, as the notes are too copious to be necessary in so short a treatise.
—De

—De Puerorum Educatione, Græc. & Lat. 8vo. ab Heumanno, Lips. 1748. "An excellent edition."—*Opera Moralia, Græc. et Lat. 5 vol. 4to. and 11 vol. 8vo.* Cura Wyttenbach, Oxon. 1795, &c. This is a valuable and elaborate edition, formed upon the Aldine text, and does great credit to a most able scholar and acute critic. He acknowledges, that this work has occupied 30 years of his life, and that he has referred to as many manuscripts as were ever consulted to illustrate any Greek author. See Dibdin, p. 325. Notes are still wanted to render this work completely useful. The Greek Text would have a more elegant appearance, if printed without contractions. The examples of Brunck, Professor Porson, and the Bipont Editors, it is to be hoped, will have in time sufficient influence to banish such barbarisms.

EPICTETUS. A. C. 160.

Ab Antonio de Sabio, with the Commentary of Simplicius, 4to. Venet, 1528. E. P.—Epictetus, Cebes, & Theophrastus, Gr. & Lat. 8vo. Simpson, Oxon. 1739. There are two very good editions of Epictetus, by Professor Heyne, especially *the last*. He has given the Scholia of a Manuscript never before published.—Upton, 2 tom. 4to. Lond. 1739. "This is an incomparable edition of a work, which I shall ever regard as one of the most valuable remains of antiquity."—*A Schweighæuser, 5 vol. 8vo.* This sagacious and learned Editor confirms the above opinion of Dr. H. in his own most excellent edition, which is replete with useful observations.

ISOCRATES. B. C. 338.

A Chalcondyla, fol. Mediol. 1493. E. P.—A Battie, 2 tom. 8vo. Gr. and Lat. Cant. 1729.—*Auger, 3 tom. 8vo. Paris, 1782.* This is an elegant work. "Notæ Augeri sunt ut plurimum utiles & doctæ, sed ex historia debuerat crebrius eruditiusque explicari Isocrates." Harles.

DEMOSTHENES. B. C. 322.

Fol. apud Ald. 1504. E. P. The Bodleian copy contains argumenta Libanii, &c. Aldus published two editions of Demosthenes in the above year, differing from each other in material points.—Lutetiæ Gr. fol. apud Benenatum, 1570. Critics of high character have affirmed this to be an excellent edition. See Reiske's Prolegomena. "Hæc Editio longe optima, quod ad contextum attinet." Markland in Leptinem, p. 494,

p. 494, &c.—A Wolfio, Gr. & Lat. fol. Francof. 1604. “This is the most beautiful and accurate of the various editions by Wolf.” Dibdin.—A Taylor, 4to. vol. 2 and 3. Cant. 1748, &c. This beautiful edition, the first volume of which has never appeared, as Dr. Taylor did not live to complete his design, contains both Demosthenes and Æschines. The notes abound with useful information upon subjects of Grecian Antiquities.

SEPARATE ORATIONS.

Orationes ab Allen ex editione Lucchesinii, 2 tom. 8vo. 1755. This is a useful edition with good notes.—Demosthenis & Æschinis *Λόγοι Ἀσκληπιῶτος*, edidit Taylor, 2 tom. 8vo. Cant. 1769.—Oratio contra Midiam, & Lycurgus contra Leocratem, a Taylor, Cant. 8vo. 1743.—Contra Leptinem, edidit Wolfius, 8vo. Halæ. 1789. These four editions contain the greater part of the Orations more immediately connected with the History of Greece, and are usually recommended to the perusal of Students. They extend to p. 587 of the first volume of Reiske's *Oratores*, and p. 379 of the Paris edition of 1570. Legatio Gr. & Lat. a Brooke, Oxon. 8vo. 1721.—De Corona, 8vo. Gr. & Lat. a Foulkes & Freind. Oxon. 1696. “This is a correct edition.” Lately republished at the Clarendon Press, without a Latin translation, in a manner highly creditable to the Editor. The Editions of *Mountenay's Selectæ Orationes*, subsequent to that in 1731, can only be noticed to be censured for their incorrectness.

LYSIAS. B. C. 162.

Fol. inter Rhetorum Græcorum Orationes apud Ald. 1513. E. P.—a Taylor, Gr. & Lat. 4to. Lond. 1739. This is certainly preferable to the edition in 8vo. which Dr. H. commends. This work, elegantly and correctly printed by the learned Bowyer, is enriched with the observations of Jeremy Markland, a profound scholar and most worthy man.—Auger, 8vo. 2 tom. Paris, 1783. There is more useful information for the Editor of a Classic to be found in the preface to this edition, than in any work of equal size. It was republished by the late Rev. H. Homer, in a Collection of Treatises entitled “*Tractatus varii*.”

PLATO. B. C. 340.

Lat. Interprete M. Ficino, Florent. 1482. This version is of manuscript authority.—Græc. 2 vol. fol. Venet. apud Aldum.

Aldum. 1513. E. P.—Opera omnia cum Verfione Serrani & Notis H. Stephani, 3 tom. fol. 1578. A truly magnificent work.—Opera omnia, Gr. & Lat. fol. Ficini, Lugd. apud Gul. Læmarium, 1590. This edition is referred to by Ruhnkenius in his notes to Timæi Lexicon, &c. which renders it a valuable and convenient book to scholars.—Opera omnia Biponti, Gr. & Lat. ex editione H. Stephani cum Verfione Ficini, et variis Lect. 12 tom. 8vo. 1781. An elegant, accurate, and convenient work. All Critics ought to possess the second Basil edition, 1556, as it contains some curious readings. And the first Basil, 1534, is desirable for the Commentary of Proclus on Timæus. See Routh in Platonis Gorgiam, and Porson in Emendationes Suidæ a Toup.

SEPARATE TREATISES.

Platonis Convivium. Græc. Paris, apud Wechel, 1543. "A beautiful book."—Plato de Republica, a Maffey, 2 tom. 8vo. Cant. 1713. The notes are trifling, and the text incorrect, but it is the only separate edition of this treatise.—Platonis Dialogi Selecti, a Foster, 8vo. Oxon. 1745, 52, and 65. The first edition is the best.—Dialogi XI. Cura Fischeri, 4 tom. 8vo. Lips. 1770.—Euthydemus et Gorgias, a M. J. Routh, 8vo. Oxon. 1784. This work does equal credit to the diligence and learning of the Editor. It contains the Collation of two MSS. one of the Gorgias in the Bodleian Library, which has some readings different from the Aldine edition, and peculiar to itself; the other of the same Dialogue in the Royal Library at Paris, which is the oldest MS. of Plato extant there.

ARISTOTLE. B. C. 322.

Cum Theophrasto, 6 vol. fol. Venet. apud Ald. E. P. 1495-8. This is justly regarded as one of the most splendid and elaborate productions of the Aldine press.—Apud Ald. 6 vol. 12mo. Venet. 1552. This is considered by the Critics as the best Text of Aristotle.—Sylburgii, 11 tom. 4to. Franc. 1587, &c. This is a very fine, but a scarce and expensive Edition. "Si quis omnes xi tomos collegit, quod raro fit, is habet de quo gloriatur." Harles.—fol. Basil, apud Isingrinium, 1531. See Harles's Præf. ad Poet. & Buhle. This Edition is by Erasmus.—Gr. & Lat. Duval, 2 tom. fol. Lutet. 1619-29, 2 vol. 1639-54, 4 vol. "These editions, in Greek and Latin, follow closely that of Casaubon. The latter is printed with larger types, but is greatly inferior to the first, in utility and correctness." Dibdin. —, a Buhle

Buhle Bipont. 8vo. The Text is taken from Duval. Five volumes only have been published since 1791. This promises to be a convenient and useful Edition. It has the advantage of an elaborate notitia literaria, and a copious collection of various readings. The first volume contains *seven* Lives of Aristotle.

SEPARATE TREATISES.

Aristotelis Rhetorica. Gr. & Lat. Cant. 8vo. 1728. —
Rhetorica Holwell, Gr. Oxon, 1759. These are both scarce.
—— Ethica Wilkinson, Oxon. 1716. An excellent edition. —
Poetica Tyrwhitt, Oxon. Without contractions. 1794. Dr. Harwood calls Mr. T. with the greatest propriety, a modest, ingenious, and skilful Critic. He has done much to elucidate this valuable Treatise. — Excerpta ex Aristotelis Organō, de simplicibus terminis, &c. 8vo. Oxon. 1802.

THEOPHRASTUS. B. C. 218.

Fol. apud Ald. 1498. E. P. It forms a part of the Aldine edition of Aristotle, in 6 vol. fol. — Opera omnia, Græc. & Lat. fol. Heinsii, Lugd. Bat. 1613. "This is an excellent edition, and contains all the works of Theophrastus that remain to us; among which are several scarce pieces de Igne, de Vertigine, de Sudoribus, &c. The latter edition by Brodæus, 1644, which is often confounded with it, contains only the Historia Plantarum." — Characteres Ethici, Græc. et Lat. 8vo. a Needham, "with valuable Notes by the very learned Duport, Professor of Greek in Cambridge, Cant. 1712." — Characteres, 8vo. a Coray, Parisiis. This edition contains the Collation of one or two good MSS. Dr. Coray is a native of Greece, and an excellent Scholar. See the Conclusion of the History of Greece, Vol. i. p. 381.

LYCOPHRON. B. C. 276.

E. P. 8vo. apud Ald. 1513. with Pindar, &c. — Potter, fol. Oxon. 1697 and 1702, which is the better of the two. — Reichardi, Gr. & Lat. 8vo. 1788, cum Versione Canteri, notis, &c. A convenient edition of this "Poema obscurum etiam doctis appellatum."

THEOCRITUS. B. C. 263.

— Mediolani, fol. Græc. supposed to have been printed in 1493. It contains only eighteen Idyllia. E. P.—without the Scholia, and containing Hesiod, Theognis, &c. apud Ald. 1495. A very beautiful and rare book. See Hesiod, p. 427, and Warton's Prolegomena. — a Warton, 2 tom. 4to. Græc. et Lat. Oxon. 1770. "This is a very splendid edition, and, after a careful perusal, I can pronounce it as correct as it is splendid." Wartonus in venustatibus Siculi Poetæ aliorumque sentiendis et enarrandis tantum Toupio et Valckenaerio antefendus, quantum viris hisce doctissimis in investigandis, et dijudicandis veris Vet. Script. Lectionibus posthabendus." Prof. Dalzel. This edition is certainly more remarkable for a display of that poetical taste which distinguished Mr. Warton, than for critical acuteness, or a judicious use of the Collations and Notes of Sanctamandus deposited in the Bodleian Library. It must, however, be allowed to be a very elegant edition.—*Theocriti, Bionis, et Moschi Carmina Bucolica, Græc. et Lat. 8vo. Lugd. Bat. a Valckenaer, 1781.* This is an excellent production of a profound scholar. The *D'Orville*, MSS. lately purchased for the Bodleian Library furnish copious materials for a new edition of Theocritus.

BION & MOSCHUS. B. C. 187.

Bion et Moschus, a Heskin, Græc. et Lat. 8vo. Oxon. 1748.—*Bion et Moschus, illustrabat et emendabat Gil. Wakefield, Lond. 12mo. 1795.* It is an elegant and convenient pocket volume, and is remarkable for being printed without accents. "Ufus est editionibus Heskini, Brunckii et Valckenaeri quorum postremus in angustiiori hoc officio non habuit satis spatii ad vires egregias ingenii sui ac doctrinæ pro more exhibendas." Ad Lectorem, p. i. Gilbert Wakefield was one of the most diligent Scholars of the last century. See Harles's *Introd. L. G. 1. i. p. 132.*

MUSÆUS. Uncertain.

Gr. 4to. impressus literis majusculis sine loci vel Anni indicibus. De Bure suspects the originality of those Books which are published without date or place; as he thinks they may be republications of earlier works.—Gr. & Lat. Kromayeri, 8vo. Hal. Magd.—Roeveri, Gr. & Lat. 8vo. Lugd. Bat. 1737. Both these are excellent editions. Roever,

when barely 18 years of age, collected the readings of 7 manuscripts, and 17 editions. Perhaps the best and most complete edition is by Schröder, 8vo. Leovard, 1742.

ARATUS. B. C. 277.

Fol. Gr. inter Astronomos veteres apud Ald. 3 tom. fol. Venet. 1499. E. P. ——— Grotii, 4to. 1600, apud Raphaleng. Scarce and valuable. ——— a Fell, Gr. 8vo. with the Greek Scholia. A useful edition. Buhle printed an edition at Leipfic. 1793.

CALLIMACHUS. B. C. 244.

Gr. 4to. cum Scholiis Græcis impressus in literis majusculis sine loci vel anni indicio. This edition is by Lascaris, probably about 1494. ——— Ernesti, Græc. & Lat. 2 tom. 8vo. Lugd. Bat. 1761. This edition contains many observations of Hemsterhusius, and corrections by Ruhnkenius, with the elaborate and desultory commentary of the learned Spanheim. Luzacius published the fragments of Callimachus, illustrated by the Notes of his Relation the late L. C. Valckenaer. Callimachus is included in Brunck's *Analecta vet. Poet. Græc.* Vol. i. p. 423, &c.

APOLLONIUS RHODIUS. B. C. 230.

Impressus in literis majusculis, 4to. Florent. 1496, with the Scholia by Lascaris, E. P. — Scholia in Apollonium Rhodium, 8vo. Argent. 1541. — Cum scholiis Gr. apud H. Stephanum, 4to. 1574. ——— *E scriptis octo veteribus libris, quorum plerique non collati fuerant, nunc primum emendate edidit Græce Brunck.* Argent. 4to. and 8vo. 1780. This learned Editor speaks with great severity, both in his Preface and Notes, of the Oxford edition, by Shaw, 2 vol. 4to. cum Scholiis, 1777. B. is an excellent scholar, but he is sometimes too bold in his criticisms, and too severe in his censures. Beck, the Editor of Euripides, has published the first volume of a good Edition at Leipfic, 8vo. Gr. & Lat. 1797.

APOLLODORUS. B. C. 115.

—— a Heyne, 4to. 12mo. Gottingen, 1782. Apollodorus is a very useful Classic to supply mythological information. His fragments are included in Gale's *Historiæ Poeticæ Scriptores*, Paris, 1695.

ORPHEUS.

ORPHEUS.

Argonautica & Hymni, &c. 4to. Græc. apud Juntas Florent. 1500. E. P. Gesner, 8vo. Lips. 1764. "Tu quisquis posthac opera Gesneri uteris, viri de Literis Græcis & Latinis optime meriti, nomini & gloriæ fave." Hambergerus in Præfat. — *Περὶ Ὀρφέως Poema a quibusdam Orpheo ascriptum Græc. & Lat. ex edit. Gesneri.* recensuit, notasque adjecit T. Tyrwhitt, simul prodiit auctarium Dissertationis de Babrio. Lond. 1781.—a Schneider Jenæ, 8vo. 1803.

ALCIPHRON.

Alciphronis Epistolæ Græc. & Lat. 8vo. Bergleri. Traject. ad Rhenum, 1791. I suspect this to be a spurious edition. It was probably printed in London, but without Bergler's Notes, which are very learned and ingenious. The true edition of Bergler is 1715. Wagner, a respectable German Critic, has since edited Alciphron, with some additional Letters and Fragments never before published. He has incorporated most, if not the whole of Bergler's Notes.

JOSEPHUS. A. C. 93.

Gr. fol. "Beautifully printed by Froben, Basil, 1544." E. P. — Gr. & Lat. 2 tom. fol. Oxon. a Hudson, 1720. "Very correct." This is the edition cited by Dr. Lardner, in his Credibility and other Works. — *ad Editionem Havercampii cura Oberthür,* 3 tom. 8vo. Lips. 1782.

DIOGENES LAERTIUS. A. C. 122.

4to. Basil, apud Froben: 1533. E. P. — Græc. & Lat. 8vo. apud H. Stephanum, 1570, and a more correct edition in 1594. — Menagii, fol. Lond. 1663. This publication was intrusted to the care of the learned Bishop Pearson. — Meibomii, 2 tom. 4to. Amst. 1692, *cum notis variorum.* "It is very correct and beautiful, and adorned with the heads of the Philosophers." — Longolius published a convenient edition, with copious indices and sections, into books and chapters, 2 tom. 8vo. 1739; and in 1759, an Abridgment of the first Edition, at Leipzig, without the Plates and Preface.

ARRIAN. A. C. 140.

Expositio Alexandri, Gr. E. P. 8vo. Basil, 1539.——
Blancardi, Gr. & Lat. 8vo. 1668. "This edition possesses
 great merit."——*Tactica*, Gr. & Lat. 8vo. *Blancardi*, Amst.
 1683.——*Expositio Raphelii*, Gr. & Lat. 8vo. 2 tom. Amst.
 1757. "Admodum probabilis editio." Harles.

APPIAN. A. C. 143.

A. C. Stephano. Græc. fol. Lutet. 1551. E. P.——Gr.
 & Lat. 2 tom. 8vo. *Variorum* Amst. 1670, with the Notes of
Tollius, to which Dr. H. gives a high character.——
Schweighæuser, 3 tom. 8vo. Græc. & Lat. Argent. 1785. This
 is by far the best edition, and a good Companion to Polybius,
 by the same diligent editor.

POLYÆNUS. A. C. 164.

——*Stratagemata*, Gr. & Lat. 12mo. E. P. *Casau-*
bon, Lugd. 1589. E. P.——Gr. & Lat. 8vo. *Masvicii*
Leopardiæ, 1690, with the Notes of *Casaubon*.——a *Murfinna*,
 Gr. & Lat. 8vo. Berol. 1756. The Text is from *Masvicius*,
 with a corrected Translation and a Greek Index.

PAUSANIAS. A. C. 170.

——*Græciæ Descriptio*, Gr. fol. apud Ald. 1516. E. P.
 ——Gr. & Lat. fol. a *Kuhnio*. An excellent edition.
 ——a *Facio*, 2 vol. 8vo. Leipf. 1794, &c. The Text
 of this very good edition is corrected from the collation of a
 Vienna and a Moscow Manuscript.

ANTONINUS. A. C. 180.

Gr. & Lat. 4to. a *Gataker*, Lond. 1697. "The Cambridge
 edition of 1652 is much more beautiful and correctly printed."
 It was again printed *Traj. ad Rhenum*. fol. 1698, with the
 Critical Works of *Gataker*.

LUCIANUS. A. C. 180.

Fol. cum *Philistrati* & *Callistrati* opusculis, Florent. 1496.
 E. P. Very scarce.——*Benedicti*, 2 tom. 8vo. Salmur, 1619.
 "A good

"A good edition."—*There is no better edition of Lucian than that of Hemsterhusius, Reitzius, and J. Gesner, printed in 1743-6, in 4 tom. 4to. Amst.* It contains the Notes of Grævius, Solanus, Faber, and T. Hemsterhusius. The Bipont edition, in 10 vol. 8vo. Greek and Latin, is a republication of this, with the collation of some Paris Manuscripts.

ARISTIDES. A. C. 185.

——— Orationes, Gr. & Lat. 12mo. 3 tom. Canteri apud P. Stephanum, 1604. "A good edition, and very commodious."——— *Jebb, 2 tom. 4to. Oxon. 1722.* "Correct and valuable."

DEMETRIUS PHALEREUS.

De Elocutione, Victorii, fol. Florent. 1562.—A small 8vo. edition was published at Glasgow, in Greek and Latin, in 1743.

QUINTUS CALABER. A. C. 200.

——— Gr. 8vo. E. P. apud Ald. fine anno.——— Gr. & Lat. 8vo, a Pauw, Lugd. Bat. 1734.

OPPIAN. A. C. 213.

——— *Halieuticon, Gr. E. P. Florent. 1515. E. P. Opera, Gr. & Lat. 2 tom. 12mo. Rittershusii, Lugd. Bat. 1597.*——— *Schneideri, Gr. & Lat. 8vo. Argent. 1776.*——— *Cynegetica by Belin de Ballu, 8vo. Argent. 1786.* A good edition.

DION CASSIUS. A. C. 229.

Gr. fol. apud R. Stephanum, 1548. E. P.——— *a Reimar, 2 tom. fol. Gr. & Lat. Hamb. 1750.* "One of the most correct and valuable Greek Works ever printed. The Notes contain a treasure of erudition." It was begun by the learned Fabricius, and completed by his son-in-law, Reimar.

HERODIAN. A. C. 247.

Herodian with Zosimus, and the elegant Latin translation of Politian, 4to. 1581.——— Græc. & Lat. Bœcleri, 8vo.

Argent. 1644. This has been frequently reprinted with the copious Index of Scheidius. It was published last of all in 8vo. 1672. There is a very bulky edition, by Irmisch, 3 tom. 8vo. 1789, with Notes of all the Commentators; and, a very convenient and portable one by Wolf. 12mo. 1792.

LONGINUS. A. C. 273.

E. P. Robertelli 4to. Basil. 1554.——— a Z. Pearce, 4to. and 8vo. For an account of the progressive editions, see the Preface, p. 1, &c.——— Oxon, 4to. & 8vo. Gr. & Lat. 1778. The learned Memoir of the Life and Writings of Longinus, prefixed to this edition, was contributed by Rhunkenius, who was its real Author, and not Schardam, as is erroneously stated by Toup. Vide Vitam Ruhnkenii a Wyttenbach. Mr. Toup shews great acumen and learning in his Notes, when he adheres to his Author, as well as when he digresses from him. He is sometimes too bold and precipitate in his criticisms, and too fond of inserting readings into the Text upon his own authority. Still, however, he merits the praise of an able and sagacious Critic. There are many typographical errors; yet this edition may be pronounced to be by far the best.

ZOSIMUS. A. C. 427.

Published with Herodian, by H. Stephens, 4to. 1581.—Reitemier, et cum animadversionibus Heynii, Gr. & Lat. 8vo. Lips. 1784.

PHALARIS.

Græc. & Lat. 4to. Venet. 1498. E. P.——— Gr. et Lat. a Boyle, Oxon. 1695 and 1718.—A Dissertation upon the Epistles of Phalaris, with an answer to the Objections of the Hon. C. Boyle, by R. Bentley, D. D. to which are added, Bentley's Dissertations upon the Epistles of Themistocles, Socrates, &c. This Work contains an admirable display of Dr. B.'s critical acumen.—*Phalaridis Epistolæ, cum Notis Boyle et Comment. Lennep, a Valckenaer, Gr. et Lat. 4to. Groning, 1777.* To this is subjoined an elegant Latin Translation of all Bentley's Dissertations on Phalaris and Æsop, &c.

GREEK COLLECTIONS IN PROSE AND VERSE.

Astronomi Veteres, Gr. & Lat. 3 tom. fol. apud Aldum, 1499. Very scarce.—*Antiquæ Musicæ Scriptores*, Gr. & Lat,

Lat. 4to. a Meibomio, 1652.—*Mathematici Vett. Græc. & Lat. fol.* Paris, 1693.—*Geographi Antiqui minores*, a Hudson, Gr. & Lat. 8vo. Oxon. 1698, &c. This Work is so scarce and valuable, that it ought to be reprinted.—*Comicorum Græc. Sententiæ*, a H. Stephano, 12mo. 1569.—*Poesis Philosophica*, 12mo. ab eodem, 1575.—*Opuscula Mythologica, ethica & physica*, Gr. & Lat. 8vo. a Gale, Amst. 1688.—*Sibyllina Oracula*, Gr. & Lat. 2 tom. 4to. Gallæi Amst. 1689.—*Dicta Poetarum apud Stobæum*, a Grotio, 4to. 1623. A curious and valuable book.—*Excerpta e Tragæd. & Comæd. Gr.* ab eodem, 4to. 1627.—*Pindari cæterorumq; Lyricorum Carmina*, a P. Stephano, 1626.—*Poetriarum octo fragmenta*, 4to. Hamb. a Wolfio, 1734.—*Mulieres Græcæ quæ profa oratione usæ sunt*, 1735.—*Sapphûs fragmenta*, 4to. Hamb. ab eodem, 1753.—*Poetæ minores, viz. Hesiodus, Theocritus, &c.* a Winterton, 8vo. Cant. The edition of 1652, printed by Buck, is the best.—*Poetæ Gnomici*, Gr. & Lat. 12mo. a Brunck, Argent, 1784.

ORATORES GRÆCI.

A Reiske cum *Commentariis Variorum*, 12 tom. 8vo. Lips. 1770. This extensive Work contains not only the Notes of Wolf, Taylor, and Markland, but some additional Notes by Taylor, sent to Reiske in manuscript by Dr. Askew. It is remarkable, that Reiske has omitted Isocrates, who certainly is entitled to a place among the Orators. I am aware of the remark of Quintilian, that he was “*palæstræ quam pugnæ magis accommodatus* ;” but it is well known, that he left more than 30 Orations behind him. Whoever wishes to examine Demosthenes with care, ought to inspect the whole apparatus of Reiske. Yet he will find, that the different parts of the Work, the various Readings, Comments, &c. are thrown together rather inconveniently. Harles speaks of the critical character of Reiske in the highest terms, and commends his candour and simplicity, his extraordinary erudition and proficiency in the Greek and Oriental Languages ; but it must be allowed that his Notes are often jejune, and discover marks of a precipitate judgment.

ANTHOLOGIA.

Gr. 4to. impressa in literis majusculis, E. P. Florent. 1494.
 ——— apud H. Stephanum, 4to. Paris, 1556.—
 a Const. Cephalæ, 8vo. Lips. 1754.— Iterum prodit,
 Oxon. 2 tom. 12mo. An elegant publication by T. Warton.

—*Analecta veterum Poetarum Græcorum*, Editore Brunck, 3 tom. 4to. and 8vo. Argent. 1785. An elegant and erudite Work—Indices, & commentarium adjecit Jacobs, &c. 9 tom. Lips. 1798. In his *Prolegomena*, containing nearly 200 pages, Jacobs gives a very accurate and interesting account of the authors of the Epigrams, and of the Compilers of the different Collections. The substance of these *Prolegomena*, prefixed to a judicious selection of these exquisite remains of Greek Literature, would form a work highly acceptable to all classical Readers.

LATIN CLASSICS.

ENNIUS. B. C. 180.

——— *Fragmenta*, a Hier. Columna, 4to. Neap. 1590, 1595. ——— a Merula, Lugd. Bat. 1595. ——— ab Hesselio, 4to. Amst. 1707. Hesselius has omitted much useful information contained in the preceding Editions.

PLAUTUS. B. C. 180.

Fol. Venet. 1472. E. P. ———, a Lambino, fol. Paris, 1577. This is a very excellent and useful edition.—*Plautus, cum Notis Variorum**, Lugd. Bat. 1664, 69, & 84. “I have twice read through this last edition of Plautus, which is esteemed the best; but I greatly lament that we have not a better.”—*Plautus, Ernesti, Lips.* 2 vol. 8vo. 1760. is a republication of the above edition. The want of which Dr. H. complained was supplied by this learned Editor, who has added some good Notes by Otho, and an useful Preface. Dr. Bent-

* By the *Variorum* Editions are to be understood those published about the middle of the 17th century, principally by Grævius, Gronovius, and Schrevelius. They comprise about 120 volumes. These editions possess different degrees of merit. Such as were superintended by Grævius, Gronovius, and Tollius very much surpass the editions by Thyfius, Oisellus, Pitiscus, and Schrevelius, who frequently mangle the Remarks of the Annotators, from whom they give selections. The *quarto* editions published in Holland, though perhaps more bulky and crowded with Notes than may suit the generality of Readers, are correct and valuable repositories of critical and antiquarian learning.

ley used to complain of the bad state of Plautus's Text. See his Remarks on Free Thinking. The Text of the Bipont Edition, in 2 vol. 8vo. 1788, was corrected by Brunck.

TERENCE. B. C. 160.

——— Ex Recensione Calliopi, 4to. Venet, 1471. E. P. ——— Antesignani, 4to. 1565. Scarce and valuable. ———, a Westerhovio, 2 tom. 4to. Hag. Com. It contains the ancient Scholia of Donatus, and the Illustrations of more modern Commentators.—*Terentii Comediæ & Phædri Fabulæ*, republished at Amsterdam, in 2 vol. 4to. 1726. "Dr. Bentley communicated to Wetstein the publisher many additional notes and emendations." This edition is superior to the Cambridge of 1726. It contains an excellent Index by Westerhovius. ———, a Zeunio, 2 vol. 8vo. Lips. 1774. Harles gives this edition a high character.

CATO, COLUMELLA, &c. B. C. 146.

Scriptores, rei rusticæ, Gesneri, 2 tom. 4to. Lips. 1776. The 2d edition. ———, a Schneider, 8vo. Lips. in several volumes.

CATULLUS. B. C. 87.

——— Parmæ, fol. 1473. E. P. ——— Vulpîi, 4to. Patavii, 1737. "The Text is exhibited in a correct manner, and the Notes are very valuable." ———, a Doering, 2 tom. 8vo.

TIBULLUS. B. C. 19. PROPERTIUS. B. C. 7.

———, E. P. 4to. 1472.—Catullus, Tibullus, & Propertius apud Steph. notis Scaligeri, 8vo. 1577. A convenient edition, and illustrated with most learned notes. ———, cum Notis Variorum & Grævii, 8vo. Utr. 1680. A handsome book, but expensive, and the notes are much garbled. The best variorum edition is that of Morell, fol. Paris, 1604; that of Passerat is also a learned work, fol. Paris, 1608.—*Tibullus*, a Heyne, 8vo. Lips. 1777. "This is one of the best published Classics I ever read. It is a faultless book." The last edition, in 1798, has better pretensions to this high character, as it contains not only the excellency of the former editions, but the readings of four additional manuscripts.—*Propertius*, a Burmann, 4to. 1780. Mr. Dibdin, in conformity

formity with the opinion of Harles, pronounces it by far the best edition of this Poet yet published.

LUCRETIUS. B. C. 54.

Fol. E. P. Veronæ, 1486.——, 8vo. ex editione, T. Creech, Oxon. 1695. A very neat edition. Its merit rather consists in the elucidation of the Epicurean philosophy, than in the display of any considerable critical acumen.——, 4to. 2 tom. *Havercamp, Lugd. Bat.* 1725. All the notes of Creech are included in this excellent edition, as well as those of Lambinus, Grifanius, Faber, Isaac Vofcius, &c.

CÆSAR. B. C. 44.

Fol. E. P. Romæ, 1469.——, *Oudendorp, Lugd. Bat.* 4to. 1737. An excellent edition. That by Dr. Clarke, in folio, is one of the most magnificent Classics ever published.

CICERO. B. C. 40.

Fol. E. P. Opera omnia, 4 vol. Mediolan, 1498.——, cum Asconio, et Scholiaste veteri ac Notis integris Victorii, &c. collegit, disposuit, &c. Isaacus Verburgius, 4 tom. 4to. Amst. 1724. A very compact, neat, and cheap edition.—— Olivet, 4to. Paris, 9 vol. 1740; & Genevæ, 9 vol. 4to. 1758. “These editions are deservedly held in great esteem. That of Paris is formed on the editions of Victorius Manutius, Lambinus, and Gruter: when these agree with each other, Olivet does not depart from them: when they disagree, he adopts that reading which his judgment suggests as the preferable one. The Geneva edition is a respectable substitute for that of Paris.” Dibdin. The Printer observes, in his address to the Reader, “Emendationes suas et in Textu et in Notis lubenti animo ad nos transmisit eruditissimus Commentator, eandemque respectu sequentium Voluminum curam præstabit.”—— *Ernesti*, 8 tom. *Halæ*, 8 tom. 8vo. 1757 & 1773-77. The first edition wants many notes to the Philosophical Works.

SELECT WORKS OF CICERO.

Officiorum, lib. 3, & Paradoxa, fol. in 1465, a Johan. Fust Mogunt, E. P. This is one of the first printed and most celebrated books in the world. De Officiis, a Pearce, 8vo. Lond. 1745.—The same, 12mo. by Heusinger, Oxon. The explanatory

tory and historical notes render this edition very useful to young students.—*De Oratore*, Pearce, 8vo. Lond. 1745. This edition is better printed than the former Cambridge editions.—*De Oratore*, a Proust, cum Interpretatione et Notis, 8vo. Oxon. 1714. This is a very useful book on account of the explanatory notes and a good index.—*Orationes*, Grævii, 6 tom. 8vo. Amst. 1699. The text of this edition is beautifully and correctly printed, and the notes of Grævius contain a wonderful treasure of just criticism and elegant erudition.—*Epistolæ ad Atticum*, Grævii, 2 tom. 8vo. This is an excellent edition.—*Epistolæ ad Familiares*, a Ross, with English Notes, 2 vol. 8vo. Cant. 1749. “The notes display a rich fund of judicious criticism with regard to Cicero’s correspondence, and the history and situation of himself and his friends.”—Grævii, 2 tom. 8vo. 1677.—*Epistolæ ad Familiares*, 8vo. a Cellario et Cortio. Cortius is one of the best critics of Latin prose. The Work contains a great fund of valuable illustration, both historical and critical.—*Epist. ad Brutum & Quintum Fratrem*, Hagæ Com. 8vo. 1725. “A very good edition.”—*Rhetorica ad Herennium* Burmanni, Lugd. Bat. 8vo. 1761. “A very good edition.”—*De Finibus Davisii*, 8vo. Cant. 1718, 28, 41. “The last of these Cambridge editions is the best printed, and is very correct. Dr. Davies was a very learned and judicious Editor.”—*Academica*, Davisii, Cantab. 1736.—*Tusculanæ Quæstiones*, Davisii, 8vo. Cant. 1709, 1723, 1730, 1738. “Only the editions of 1709 and 1738 contain Dr. Bentley’s Emissiones in Ciceronis Tusculanas Quæstiones. “Some illiberal and contemptuous reflections of Dr. Bentley caused Davies, I suppose, not to subjoin them to the 2d. and 3d editions.”—*De Natura Deorum*, Davisii, 8vo. Cant. 1718, &c.—*De Divinatione*, ejusdem, 8vo. Cant. 1721, 1730. The second edition is printed in the best manner.—*De Legibus*, 8vo. Cant. ejusdem, 1727, 1745.

SALLUST. B. C. 35.

Fol. E. P. Venet. 1470.—Cum notis Varior. 8vo. Lugd. Bat. 1690. This edition is enriched with the excellent notes of Gronovius.—Havercampi, 2 tom. 4to. Amst. 1742.—Cortii, 4to. Lips. 1724. There is a handsome and correct edition with collations of the various readings, &c. ad editionem Cortii, by H. Homer, 8vo. Lond. 1789.—18mo. Edin. 1744, excudebat G. Ged, non typis mobilibus, sed tabellis seu laminis fuis. Ged, who was a goldsmith, was the inventor of the stereotype mode of printing.

C. NEPOS.

C. NEPOS. B. C. 25.

Fol. under the title of *Æmilius Probus*, Venet, 1471. E. P. ——— Cum notis Variorum & Van Staveren, Lugd. Bat. 1773. ——— a Verheyk, Lugd. Bat. 1773. ——— ab Heusinger, 1756. These are the three best editions. "This was the first classic published in the Russian Empire at Moscow, 1762. The Bipont edition, 8vo. 1788, is tolerably useful." Dibdin.

VITRUVIUS. B. C. 15.

Fol. sine anno vel loco. E. P. ——— Fol. cum figuris, Venet. 1511. ——— *De Laet Amst.* 1649. The best edition.

VIRGIL. B. C. 20.

Fol. Literis Gothicis, sine ulla nota. "Revickzky hanc editionem pro primaria habet." Cat. Bib. Bodleian. ——— Virgilii Opera, de la Cerda, 3 vol. fol. Lugd. 1612, &c. Few Commentators on Virgil are superior to de la Cerda. ——— Masvicii, 2 vol. 4to. Leovardiae, 1717. This edition contains the valuable commentaries of Servius. ——— *A Carolo Ruæo, in Usum Delphini*, 4to. 1675. The Octavo Delphin in 1723 is a very useful edition. ——— Farnabii, 12mo. a very neat edition, convenient for the pocket. — Virgilius ex Codice Mediceo Laurentianæ descriptus, typis capitalibus, impressus, 4to, 1741. ——— Cum Græcis Scriptoribus, collatus a Fulvio Ursino, edidit Valckenaer, 8vo. 1747. This well edited work displays comprehensive reading. ——— a C. G. Heyne, 4 vol. 8vo. Lips. 1788. The third edition was published in 6 vol. 1800, adorned with beautiful engravings from antique gems and statues. This work is imperfect without Burman's edition, to which Heyne makes constant references. In consequence of his accurate collation of the best manuscripts, and intimate knowledge of the phraseology of Virgil, this edition is very highly esteemed. ——— Oxon, 8vo. 1795. The text is from Heyne, with some of his notes and parallel passages from the Greek Poets. A very pleasing edition.

HORACE. B. C. 10.

4to. sine anno vel loco, vel typographi indicio. E. P. Supposed to be printed by Zarothus about the year 1470. ——— Cruquii, 4to. Lug. Bat. 1593. "An excellent edition for explanatory notes." ——— Bentleii, 4to. Amst. 1728. "This last

last of the Dutch editions of Horace is by far the best."——a Cunningham, the learned antagonist of Bentley, Lond. 1721. "Every page evinces the learned Editor's critical sagacity and excellent judgment."—Watson's Horace, 2 vol. 8vo. Lat. and Eng. Lond. "This is a very valuable Book, and the English notes of Dr. W. are the best commentary yet published on Horace. It exhibits the late Dr. Douglas's Collection of all the editions of Horace. His collection alone must have formed a very considerable library." The number of editions and translations belonging to Mad. D'Eon, which I have seen, amounted to more than 400 volumes.—*Horatius Gesneri*, 4to. and 8vo. Edinburgh. A beautiful book, which contains a very useful selection of notes.—*Horatius, in Usum Delphini*, 4to. Paris. 1691. and 8vo. One of the most useful, pleasant, and instructive of all the Delphin Classics. Every scholar must recollect the great information he received when at school from the Delphin Classics, and particularly from Horace. "Indocti discant, & ament meminisse periti."——12mo. Glasg. 1744. A commodious edition for the pocket, but very dear. I notice it because it is asserted to be faultless. "The sheets, as they were printed, were hung up in the College of Glasgow, and a reward was offered to those who should discover an inaccuracy."——*Horatius Gesneri*, Lips. 1572, &c. & ejusdem, a Zeunio, Glasguæ, 8vo. 1796. Gesner adopted the text of Baxter. It was the observation of Bishop Lowth, that Gesner, by pursuing this plan, gave to the world the best edition of Horace. The Glasgow edition is enriched with the remarks of Zeunius. The combination of various readings and explanatory notes proves this edition worthy of its great reputation.—Two volumes of an edition, by Mitscherlich, with a perpetual Commentary and elegant ornaments, have been published at Leipzig.

OVID. B. C. 10.

Opera omnia ex Recognitione J. A. Episcopi Alerienfis, 2 tom. fol. Romæ, 1471, E. P.——Cum notis variorum, 3 tom. fol. Franc. 1601. "An excellent edition very deservedly esteemed abroad on account of many useful notes,"—many of which Dr. H. might have added are not to be found in Burman.——*Burmanni*, 4 tom. 4to. Amst. 1727. This edition may justly be esteemed the chef d'œuvre of Burman. It is one of the noblest and most correct of the Dutch Classics. Besides the notæ variorum it contains those of N. Heinsius, which form a rich store of critical learning. They are reprinted in Fischer's edition, 2 vol. 8vo. Lips. 1758.——3 vol.

vol. 8vo. Bipont, 1783. It contains a Life of Ovid from Aldus, a notitia literaria of editions, &c. and an index.

PHÆDRUS. A. C. 4.

12mo. Augustoduni, 1596. E. P. ——— Burmanni, 8vo. Amst. 1718, and *Lugd. Bat.* 1727. Burman's 4to editions contain *variorum* notes, the 8vo. only his own commentary. "I have carefully read over the edition of 1727, and it is very correct, and does great honour to the singular erudition and critical acumen of that great man.—— The *variorum* edition by Laurentius is a handsome and useful volume, and contains much illustration of the author, drawn particularly from Greek authors. Phædrus was published by Dr. Bentley at the end of Terence.

MANILIUS. A. C. 10.

E. P. 4to. Nuremb. 1474. ——— Benteii, 4to. Lond. 1739. "I regard this as one of the most valuable editions, which this great Critic ever delivered to the world."—— Stoeberi, 8vo. Argent. 1767. "A most excellent edition." It was published to oppose the emendations of Dr. Bentley, and is therefore undeserving the praise given to it by Dr. Harwood.

LIVY. A. C. 17.

—Ex Recognitione J. Andreae Episcopi Aleriensis, 2 tom. fol. Venetiis, 1470. E. P.——Gronovii, Amst. 1678. A very convenient edition, as the whole work is contained in a pocket volume.——Hearne, 6 tom. 8vo. Oxon. 1708. "This is a very accurate edition, and does honour to that illustrious Antiquary."——a Crevier, 6 vol. 4to. Paris, 1735, &c. This edition is highly commended by Gibbon. Happy would it be for the diffusion of learning, if the remark which Ernesti made upon the notes of Crevier were more generally applicable to such works: "Breves & sine ostentatione doctrinae, interdum tamen leviores, et tironibus quam viris aptiores."——The edition by Drakenborch, 7 vol. 4to. Amst. 1738, is certainly deserving the attention of every scholar; but the notes are so prolix and numerous, relating chiefly to points of verbal criticism, that they frequently fatigue and perplex, instead of informing the reader.——*Ex recensione Drakenborchii, cum Indice Rerum, &c.* 6 tom. 8vo. Oxon. 1800. This is a convenient and handsome impression, but it wants notes.

VELLEIUS

VELLEIUS PATERCULUS. A. C. 20.

It is a singular circumstance with respect to this Classic, that only one Manuscript of his Works has yet been found. The discovery of others might lead to the elucidation of many obscure passages.

—Fol. Froben, Basil, 1520, E. P.——— *Ruhnkenii*, 2 tom. 8vo. *Lugd. Bat.* 1779. This Work is a model for all future Editors; it contains the whole of Burman's notes, and of the principal Critics who preceded him.——— a Krause, 8vo. *Lips.* 1800. A very useful edition.

CELSUS. A. C. 20.

—E. P. fol. Floren. 1478.——— Almeloveen, 12mo. *Amst.* 1687 and 1713.——— Krause, 8vo. *Lips.* 1766——— *Cum Lexico*, 4to. *Targæ*, 1785. The best edition.

VALERIUS MAXIMUS. A. C. 26.

—Literis Gothicis, fol. a Schoiffer, *Mogunt.* 1471, E. P.——— Torrenii, 4to. *Lugd. Bat.* 1726. "This is one of the most valuable and best edited of the Dutch Classics."——— *Kappii*, 8vo. *Lips.* 1782. The preface is excellent; the text is from Terentius, and there is a good index.

QUINTUS CURTIUS. A. C. 54.

Vind. Spira, fol. *Venet.* E. P.——— a Freinsheimio, 2 vol. 8vo. *Argent.* 1640.——— Cellarii, 8vo. *Lips.* 1688. A useful and commodious work. "This edition of Freinsheim, who had made this elegant Latin Classic his particular study, and in his Supplement to Curtius has so admirably imitated his style, is a very correct and valuable one."——— a *Snakenburg*, 4to. *Lugd. Bat.* 1724. "Few Editors have illustrated their Authors so well, and manifested so accurate a knowledge of ancient manners and customs."

SENECA. A. C. 65.

—Fol. Neap. 1475, E. P.——— Variorum & Gronovii, 3 vol. 8vo. *Amst.* 1672. "This is by far the most beautiful and correct edition of Seneca."——— *Tragædiæ*, a Schrodero, 4to. *Delph.* 1728. "This edition has a very correct Text and ample Commentary."

LUCAN.

LUCAN. A. C. 65.

—Romæ, 1469, E. P. ——— Pharsalia, cum Notis Variorum, 8vo. Lugd. Bat. 1658. "I can recommend this as a good edition." ——— Pharsalia, Oudendorp, 4to. Lugd. Bat. 1728 ——— Pharsalia, Bentleii, 4to. Strawberry Hill. This is a scarce book, but should be procured, if it can be purchased at a reasonable rate.

PETRONIUS ARBITER. A. C. 66.

——— Venet. 1499. E. P. ——— Burmanni, 4to. Utr. 1709. "Burman, by his immense erudition and critical sagacity, hath so wonderfully illustrated this difficult Writer, that it is almost impossible for the best Scholar to read Petronius in any other edition." Burman's last edition was published by Reiske, Amst. 1743. The notes are more copious, but B. interpolated the text. ——— ab Antonio, 8vo. Leipf. 1781. A learned and preferable edition.

PLINY THE ELDER. A. C. 75.

——— Fol. Venet. 1469. A most beautiful and rare work ——— Variorum & Dalecampii, Francof. 1608. "It is a cheap, commodious, and correct Book." ——— 6 tom. 12mo. Paris, 1779. "It is said that this edition of Pliny by Brotier contains above two thousand corrections, which had escaped the researches of Father Harduin."

There are two editions by Harduin; the first in Usum Delphini, 5 tom. 4to. Paris, 1685: the second in 3 tom. fol. 1723, with additional notes and some alterations, not always for the better. Franzius published an edition at Leipzig, in 10 vol. 8vo, with the notes of Harduin and of the Variorum.

JUVENAL. A. C. 82. PERSIUS. A. C. 65.

——— Satiræ, fol. absque ulla nota, E. P. supposed in 1470. ——— Cum notis variorum, Lugd. Bat. Published by Grævius, 1684. "This is a very correct and valuable Book." ——— Henninii & Notis Casauboni in Persium, 1695. ——— Ruperti, 2 tom. 8vo. 1800, *sine Persio*. By far the best edition.

SILIUS

SILIUS ITALICUS. A. C. 77.

——— Fol. Romæ, 1471, E. P. ——— Drakenborch, 4to. Utr. 1717. ——— Ernesti, 2 tom. 8vo. 1791. ——— Ruperti, 2 tom. 8vo. 1795. The Preface was written by Heyne. ——— Le Febure, 12mo. Paris. The Editor is a learned man, but too peremptory in his opinions. The edition contains a collation of the second impression, by Pomponius Lætus, in 1471. ——— Curâ Heber, 2 vol. 12mo. An elegant edition.

VALERIUS FLACCUS. A. C. 78.

——— Fol. E. P. Bonon. 1474. ——— Burmanni, 4to. Lugd. Bat. 1724. An excellent *Variorum* edition.

MARTIAL. A. C. 84.

——— Fol. apud Spiram, sine anno vel loco. E. P. ——— Langii, fol. Paris, apud Colinaeum, 1617. It is a valuable storehouse of learned notes; and the same may be said of that edited by Scriverius. 12mo. 1619, which is very scarce. — Rader published a learned edition of Martial, three times, the last and best, fol. 1627. ——— Cum notis variorum, 8vo. Lugd. Bat. 1670. ——— 2 vol. 8vo. Bipont. 1784. "This is formed on the edition of Scriverius. There is a Life of Martial followed by a Notitia Literaria of the various Editions and Translations." Dibdin.

QUINTILIAN. A. C. 88.

——— Institutiones Oratoriæ, fol. E. P. Romæ, 1470. ——— Capperonerii, fol. Paris, 1723. ——— *Quintiliani Institutiones*, Gesneri, 4to. Gotting. 1738. "I can pronounce this to be the best edition of Quintilian yet published." It certainly is so, as far as the Institutiones go; but Burman's Edition in 2 vol. 4to. deserves particular notice. ——— a Rollin, 12mo. Paris, 2 vol. 1712, 1715, and 1738. The Preface to these editions is written with great taste and classical elegance. In the work, which is extremely well calculated for the perusal of young men, many of the obscure passages are omitted. ——— a Spalding, Berolini. He has published 6 books in 2 vol. and if we may judge by this specimen, the whole will be excellent.

STATIUS. A. C. 95.

———— fol. E. P. Romæ, 1475.—Statii Sylvæ, a T. Stephens, 8vo. Cant. 1651. An excellent edition.———— *Sylvæ*, a Markland, 4to. Lond. 1728. An edition of great excellence. “Hujus præfatio omnibus legenda, qui de codicibus scriptis, & editionibus pristinis cognoscere cupiant, aut veræ criticæ rei sint studiosi.” Ernesti.—Statii Opera omnia, a Casp. Barthio, 2 tom. 4to. Cygn. 1664. “This edition is much esteemed for the critical and explanatory notes of Barthius, which are indeed very excellent.”———— Variorum, Lugd. Bat. 1671. The merit of this edition is ascertained by its scarceness.—Statii Thebais, 2 vol. 12mo. Warrington, 1778. “A beautifully printed book, corrected, it is said, by Mr. Aikin, who has favoured the world with many specimens of his taste and erudition.”

TACITUS. A. C. 108.

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INDEX

TO THE

LIST OF MISCELLANEOUS BOOKS.

	A.	Page			Page
AFRICA, Travels into	-	505	English Language	-	481
Agriculture	-	500	— Classics	-	481
Algebra	-	494	— Topography	-	488
America, History of	-	492	Europe, Travels in	-	502
America, North, Travels in	-	505			
—, South	-	506		F.	
Antiquities, English	-	488	Fathers of the Church	-	512
Antiquities of Greece and Rome	-	486	France, History of	-	490
Arabic Language	-	514	—, Travels in	-	502
Arithmetic	-	494	French Poetry and Prose	-	499
Arts, elegant	-	497			
Astronomy	-	405		G.	
	B.		Galvanism	-	496
Biography	-	492	Gems	-	487
Botany	-	497	Geography	-	484
	C.		Geometry	-	494
Chemistry	-	497	Germany, History of	-	491
China, Travels in	-	505	—, Travels in	-	503
Christian Religion	-	480	Greece, History of	-	485
Chronology	-	485	—, Travels in	-	504
Church of England	-	513	Greek Language	-	482
Classics, English	-	481		H.	
Clerical Profession	-	508	Hebrew Language	-	514
Commentators on Scripture	-	511	History in General	-	484
Commerce	-	501	—, modern	-	489
Conic Sections	-	494	Hydrostatics	-	494
Controversy, Books of	-	413		I.	
	D.		India, History of	-	492
Denmark, History of	-	489	—, Travels in	-	504
	E.		Ireland, History of	-	489
Ecclesiastical History	-	511	Inscriptions, Marbles, &c.	-	486
Egypt, Travels in	-	505	Italian Language	-	500
Electricity	-	496	Italy, History of	-	491
Eloquence	-	483	—, Travels in	-	503
England, History of	-	487		L.	
—, Travels in	-	502	Latin Language	-	481

	Page		Page
Law, Profession of - - -	506	Professions, see Law, &c.	
Logic - - -	493	Prussia, History of - -	490
M:		R.	
Magnetism - - -	496	Rome, History of - - -	485
Mathematics - - -	494	Russia, History of - - -	490
Mechanics - - -	494	——, Travels in - - -	503
Medals and Coins - - -	487	S.	
Medical Profession - - -	507	Scotland, History of - -	489
Mineralogy - - -	497	Sermons - - -	509
Mythology - - -	486	Sicily, Travels in - - -	502
N.		Spain, History of - - -	491
National Prosperity, Sources of	500	——, Travels in - - -	502
Nature, Works of - - -	496	Statics - - -	494
Navigation - - -	405	Statistics - - -	493
O.		Sweden, History of - -	489
Optics - - -	405	——, Travels in - - -	503
Oratory - - -	483	Switzerland, Travels in -	503
P.		T.	
Painting - - -	498	Topography - - -	488
Persian Language - - -	515	Travels, Foreign - - -	501
Philosophy, Natural - - -	405	Travellers, Directions for	501
——, Systems of - - -	405	Trigonometry - - -	494
Poetry - - -	498	Turkey, History of - - -	491
Polite Literature - - -	497	——, Travels in - - -	504
Portugal, History of - - -	491	V.	
——, Travels in - - -	502	Voyages, Select - - -	506

INDEX TO THE CLASSICS.

A.	Page	B.	Page
ÆSCHYLUS - - -	518	Bibliography - - -	549
Æsop - - -	517	Bion - - -	529
Alciphron - - -	531	Boethius - - -	548
Ammianus Marcellinus - -	547	Cæsar - - -	538
Anacreon - - -	517	Callimachus - - -	530
Anthologia - - -	535	Cato, Columella, &c. - -	537
Antoninus - - -	532	Catullus - - -	537
Apollodorus - - -	530	Cebes - - -	520
Apollonius Rhodius - - -	530	Celsus - - -	543
Appian - - -	532	Cicero - - -	538
Aratus - - -	530	Claudian - - -	548
Aristides - - -	533	Collections, Greek - - -	534
Aristophanes - - -	520	——, Latin - - -	548
Aristotle - - -	527	Curtius Quintus - - -	543
Arrian - - -	532		
Aulus Gellius - - -	547		

Demetrius

INDEX.

553

D.				Page	P.				Page
Demetrius Phalereus	-	-	-	533	Pausanias	-	-	-	532
Demosthenes	-	-	-	525	Perfius	-	-	-	544
Diodorus Siculus	-	-	-	523	Petronius Arbiter	-	-	-	544
Diogenes Laertius	-	-	-	531	Phædrus	-	-	-	542
Dion Cassius	-	-	-	533	Phalaris	-	-	-	543
Dionysius Halicarnassensis	-	-	-	523	Philemon	-	-	-	521
Dionysius the Geographer	-	-	-	524	Pindar	-	-	-	517
E.					Plato	-	-	-	526
Ennius	-	-	-	536	Plautus	-	-	-	536
Epictetus	-	-	-	525	Pliny the Elder	-	-	-	544
Euripides	-	-	-	519	Pliny the Younger	-	-	-	546
Eutropius	-	-	-	547	Plutarch	-	-	-	524
F.					Polyænus	-	-	-	532
Florus	-	-	-	547	Polybius	-	-	-	523
H.					Propertius	-	-	-	537
Herodian	-	-	-	533	Q.				
Herodotus	-	-	-	521	Quintilian	-	-	-	545
Hesiod	-	-	-	516	Quintus Calaber	-	-	-	533
Homer	-	-	-	515	Quintus Curtius	-	-	-	543
Horace	-	-	-	540	S.				
I.					Sallust	-	-	-	539
Josephus	-	-	-	531	Seneca	-	-	-	543
Isocrates	-	-	-	525	Suetonius	-	-	-	548
Juvenal	-	-	-	544	Silius Italicus	-	-	-	545
Justin	-	-	-	547	Sophocles	-	-	-	518
L.					Statius	-	-	-	546
Livy	-	-	-	542	Strabo	-	-	-	524
Longinus	-	-	-	534	T.				
Lucan	-	-	-	544	Tacitus	-	-	-	546
Lucretius	-	-	-	538	Terence	-	-	-	537
Lucian	-	-	-	532	Theocritus	-	-	-	529
Lycophron	-	-	-	528	Theophrastus	-	-	-	528
Lyfias	-	-	-	526	Thucydides	-	-	-	522
M.					Tibullus	-	-	-	537
Manilius	-	-	-	542	Tragedies, Select	-	-	-	519
Martial	-	-	-	545	Translations, Select	-	-	-	549
Menander	-	-	-	521	V.				
Moschus	-	-	-	529	Valerius Flaccus	-	-	-	545
Musæus	-	-	-	529	Valerius Maximus	-	-	-	548
N.					Velleius Paterculus	-	-	-	543
Nepos Cornelius	-	-	-	540	Virgil	-	-	-	540
O.					Vitruvius	-	-	-	540
Oppian	-	-	-	533	X.				
Oratores Græci	-	-	-	535	Xenophon	-	-	-	522
Orpheus	-	-	-	531	Z.				
Ovid	-	-	-	541	Zosimus	-	-	-	534

THE END.

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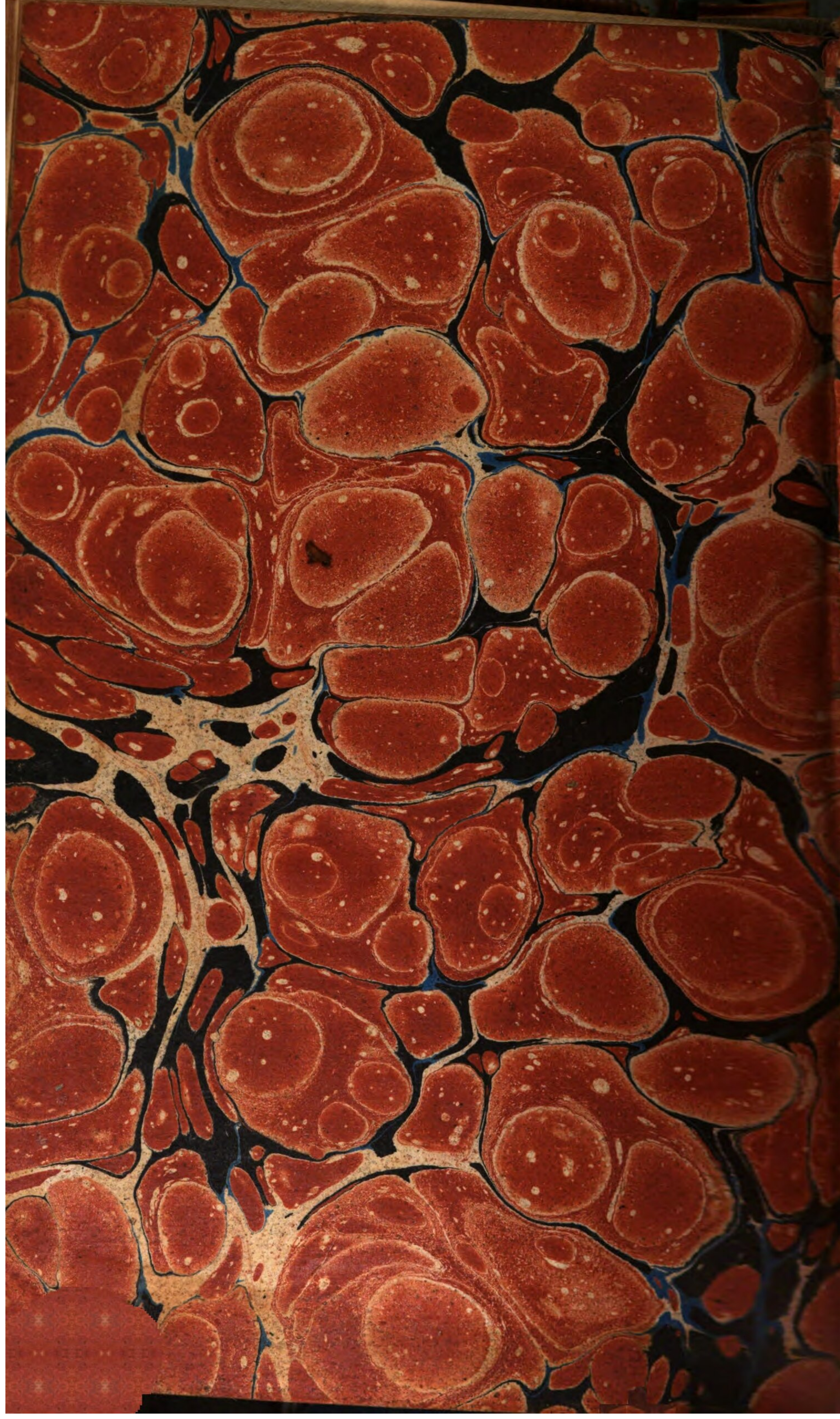
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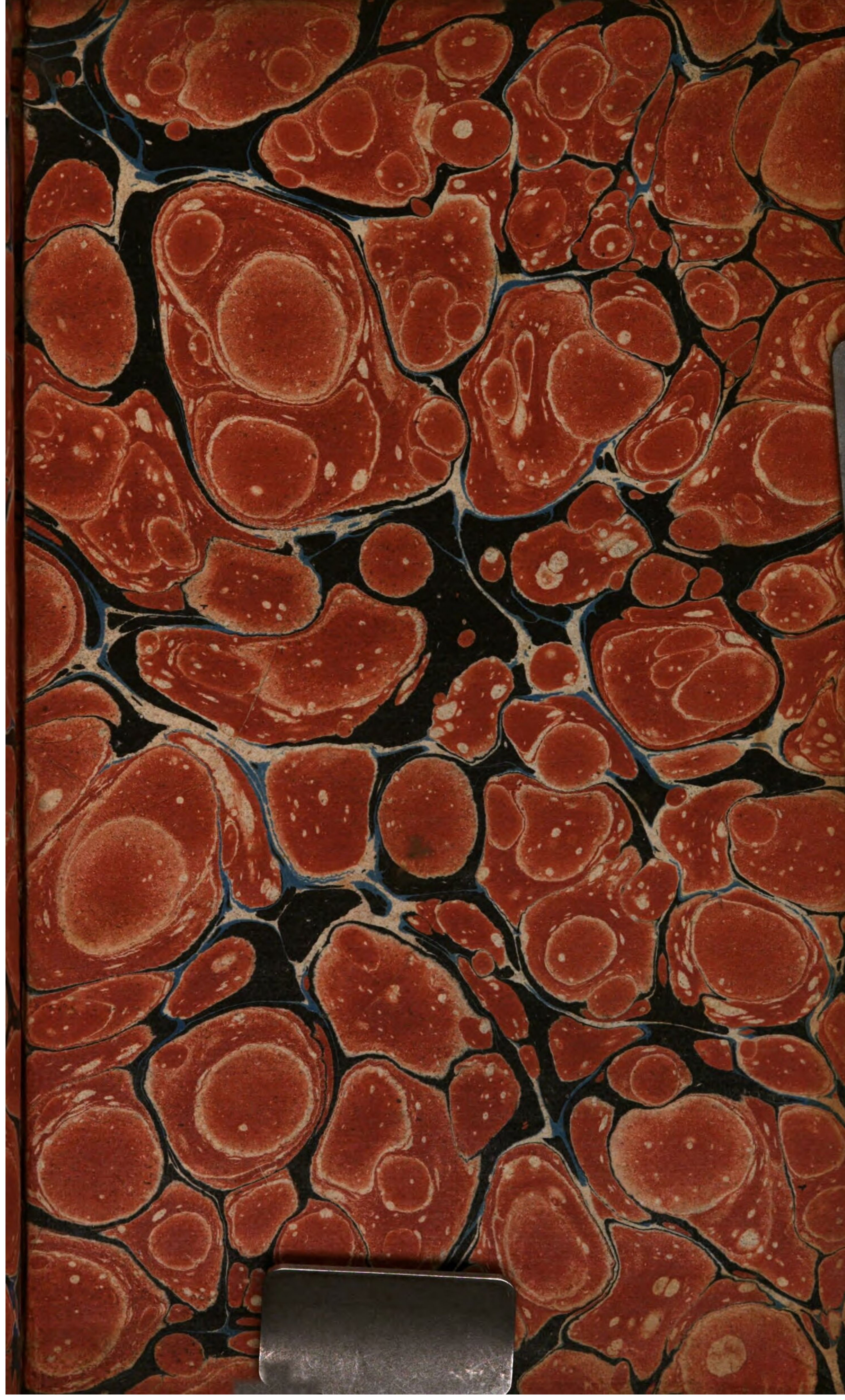
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